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NOTE REGARDING REVISIONS

The entries on pages 1 to 16 have been revised to 30 October, 1957.

Pages 41 to 106 are, for technical reasons, reprinted without change from the 1956-1957 Directory of Staff.

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EMERITUS PROFESSORS

Degrees received from McGill University carry no institutional designation and are placed after those received elsewhere.

DAVID H. BALLON, B.A., M.D., C.M., F.A.C.S., F.R.C.S.(C.)
Emeritus Professor of Otolaryngology 4687 Bonavista Ave.

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ALTON GOLDBLOOM, B.A., M.D., C.M., F.A.A.P., F.R.C.P.(C.)
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Emeritus Professor of Dentistry 1508 Crescent St.

DOROTHY KING, O.B.E., B.Sc., M.A., Dipl. N.Y. Sch. Soc. Work
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Suite 3, 1029 Linden Ave., Victoria, B.C.

ARTHUR STANLEY LAMB, B.P.E. (Springfield), M.D., C.M.
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233 St. Anne Rd., Ste. Anne de Bellevue

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G. GAVIN MILLER, M.D., C.M., M.Sc., F.A.C.S., F.R.C.S. (C.)
Emeritus Professor of Surgery Apt. E 100, 1321 Sherbrooke St. W.

NEWELL WELLAND PHILPOTT, M.D. (Laval), M.D., C.M., F.R.C.O.G., F.A.C.S., F.R.C.S. (C.)
Emeritus Professor of Obstetrics and Gynaecology *Royal Victoria Hospital*

ALEXANDER M. THOMPSON, M.A. (Queen's), A.M., Ph.D. (Harvard)
Emeritus Professor of Classics 1251 St. Mark St.

ARNOLD WAINWRIGHT, Q.C., B.A., B.C.L.
Emeritus Professor of the Law of Evidence 1614 Seaforth Ave.

ARTHUR LAMBERT WALSH, D.D.S. (Montreal), F.A.C.D. (Amer. Coll. of Dent.), D.D.S.
Emeritus Professor of Dentistry 1414 Drummond St.

WILLIAM DUDLEY WOODHEAD, B.A. (Oxon), M.A. (Alta), Ph.D. (Chicago)
Emeritus Professor of Classics Apt. 302, 3375 Ridgewood Ave.

OFFICERS OF INSTRUCTION AND ADMINISTRATIVE STAFF

SESSION 1956-1957

Degrees received from McGill University carry no institutional designation and are placed after those received elsewhere. Where two addresses are given the first is the University address and the second is, in general, the home address. In the case of many part-time members of the staff who are in professional practice, however, the "home" addresses listed are, at their request, those of their consulting offices.

JOHNSON WILLIAM ABRAHAM, M.M., D.D.S.
Lecturer in Dentistry — 4018 Royal Ave.

FREDERICK D. ACKMAN, M.D., C.M., F.R.C.S. (C.), F.R.C.P. (C.)
Demonstrator in Surgery — *Montreal General Hospital*
Suite 4, 1374 Sherbrooke St. W.

LEYLAND JOHN ADAMS, M.D., C.M., F.R.C.P. (C.), F.A.C.P.
Assistant Professor of Medicine — *Montreal General Hospital*
1374 Sherbrooke St. W.

SAMUEL T. ADAMS, M.D., C.M., Dipl. Am. Bd. Ophthal.
Demonstrator in Ophthalmology — 1610 Pine Ave. W.

RAYMOND TAIT AFFLECK, M.R.A.I.C., B.Arch.
Assistant Professor of Architecture — *3484 University St.*
29 Claude Ave., Dorval

MARY JANE AGUILAR, B.A. (California), M.D. (Colorado)
Demonstrator in Neuroanatomy — *Montreal Neurological Institute*
3250 Ridgewood Ave.

SAUL ALBERT, B.A., M.D., C.M.
Assistant Professor of Psychiatry — 945 Dunlop Ave., Outremont

BENJAMIN ALEXANDER, B.Sc., M.D., C.M., D.O.M.S. (England)
Associate Professor of Ophthalmology — *Montreal General Hospital*
1538 Sherbrooke St. W.

RENE ALLARD, M.D. (Montreal)
Demonstrator in Physical and Occupational Therapy
Montreal General Hosiptal
77 Galt Ave., Verdun

A. STEWART ALLEN, M.D., C.M., F.R.C.S. (C)
Demonstrator in Health and Social Medicine — *490 Pine Ave. W.*
4230 Royal Ave.

MOYRA ALLEN, M.A. (Chicago), B.N.
Assistant Professor in the School for Graduate Nurses — *Beatty Hall*
551 - 4th Ave., Beaurepaire

ERNEST R. AMBROSE, D.D.S.
Demonstrator in Dentistry — 3410 Benny Ave.

PHOEBUS A. ANASTASSIADIS, B.Agr. (Athens), M.Ed. (Rutgers)
Lecturer in Agricultural Chemistry and Animal Husbandry
Macdonald College

McGILL UNIVERSITY LIBRARY

BERYL L. ANDERSON, M.A. (Dalhousie), B.L.S.
Lecturer in Library Science — *Redpath Library*, 3454 Shuter St.

JOSEPH OAKES ANDERSON, B.Ed. in Phys. Ed. (Tulane)
Instructor in Athletics — *Currie Gymnasium*, 4528 Oxford Ave.

ISTVÁN ANHALT
Assistant Professor of Music — *Conservatorium of Music*, 4921 Clanranald Ave.

LOUIS J. ARCAND, B.Sc., M.Eng.
Associate Professor of Civil Engineering — *Engineering Building*, 389 Querbes Ave.

EVA C. ARENDT, M.D., C.M., F.R.C.P. (C.)
Demonstrator in Medicine and Clinical Medicine
Montreal General Hospital, 4354 Marcil Ave.

JOHN C. ARMOUR, M.D., C.M., M.Sc.
Associate Professor of Surgery — *Royal Victoria Hospital*, 1374 Sherbrooke St. W.

DONALD EUGENE ARMSTRONG, B.A., B.Com. (Alta.)
Assistant Professor in School of Commerce — *Purvis Hall*, Apt. 406, 1537 Summerhill Ave.

G. DOUGLAS ARMSTRONG, D.D.S.
Lecturer in Dentistry — 4545 Sherbrooke St. W.

MICHAEL ARONOVITCH, B.Sc., M.D., C.M., F.R.C.P. (C.), F.C.C.P.
Lecturer in Medicine — *Royal Victoria Hospital*, 4119 Sherbrooke St. W.

ATHANASIOS ASIMAKOPULOS, M.A.
Lecturer in Economics and Political Science — *Purvis Hall*, 5820 St. Lawrence Blvd.

EFFIE CONSTANCE ASTBURY, B.A., B.L.S.
Assistant Professor in the Library School — *Redpath Library*, 303 Querbes Ave.

EDITH PAULINE ASTON, Dipl. Phys. and Occ. Ther.
Lecturer in School of Physical and Occupational Therapy — *Beatty Hall*, 320 - 61st Ave., L'Abord à Plouffe

ROSEMARY LOUISE ATKINS
Demonstrator in Physical and Occupational Therapy
Verdun Protestant Hospital

FRIEDL AUFREITER, M.D. (Vienna)
Demonstrator in Psychiatry — *Allan Memorial Institute*, 28 Sunnyside Ave.

JOHANN AUFREITER, M.D. (Vienna)
Demonstrator in Psychiatry — *Allan Memorial Institute*, 28 Sunnyside Ave.

FERN AZIMA, B.A. (Queen's), M.A. (Cornell)
Demonstrator in Psychiatry — *Allan Memorial Institute*, Apt. 101, 1114 Elgin Terrace

HASSAN AZIMA, B.A. (Univ. of Cal.), M.D. (Univ. of Kans.), M.Sc.
Lecturer in Psychiatry — *Allan Memorial Institute*, 268 Prince Arthur St.

HENRY READE CHARLES AVISON, M.A.
Associate Professor of English, Chairman of the Department, and Director of Adult Education — *Macdonald College*

HARRY LYON BACAL, M.B.E., B.A., M.D., C.M., F.A.A.P., F.A.A.A.
Lecturer in Paediatrics — *Montreal Children's Hospital*
1414 Drummond St.

ROBERT ARTHUR BACK, M.Sc. (West. Ont.), Ph.D.
Research Associate in Chemistry — *Chemistry Building*
Apt. B, 4300 Dupuis Ave.

FRANK RONALD CHARLES BAGLEY, B.A. (Oxon.)
Assistant Professor of Islamic Studies — *3520 University St.*
528 Church St. (3rd St.), Beaurepaire

DONALD CHARLES BAIN, B.A.
Chief Accountant — *Dawson Hall*
Apt. 5, 3540 Durocher St.

MARIAN ADAIR BAIN (MRS. D. C.), M.Sc. (Columbia), B.H.S.
Assistant Professor of Health and Social Medicine — *490 Pine Ave. W.*
Apt. 5, 3540 Durocher St.

BRUCE EARLE BAKER, B.Sc. (Bishop's), D.Sc. (Laval)
Assistant Professor of Agricultural Chemistry — *Macdonald College*

JAMES WATSON BALHARRIE
Assistant Professor of Architecture — *3484 University St.*
55 Metcalfe St., Ottawa

C. MILLER BALLEM, M.D., C.M. (Dal.), Dipl. Int. Med.
Demonstrator in Medicine — *Royal Victoria Hospital*
3448 Peel St.

STANLEY MARTIN BANFILL, B.A. (Bishop's), M.D., C.M.
Associate Professor of Anatomy — *Medical Building*
87 Percival Ave., Montreal West

EDWARD ANGUS BANTING, B.S.A. (Tor.)
Professor of Agricultural Engineering and Chairman of the Department — *Macdonald College*

CHARLES SCOTT BARKER, B.A., M.D., C.M., F.A.C.P., F.R.C.P (C.)
Lecturer in Medicine — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

DAVID BARZA, B.A., M.D., C.M.
Demonstrator in Medicine — *Royal Victoria Hospital*
548 Cote St. Catherine Rd.

SYDNEY BARZA, M.D., C.M.
Demonstrator in Psychiatry — *Montreal Neurological Institute*
2977 Brighton Ave.

DAVID V. BATES, M.B.B.Ch. (Cantab.), M.D., M.R.C.P. (Lond.)
Associate Professor of Medicine and Clinical Medicine — *Royal Victoria Hospital*
2126 Norway Rd., Town of Mount Royal

LOUIS BAUDOUIN, Docteur en Droit, ès-Sciences Juridiques, et ès-Sciences Politiques (Paris)
Professor of Law — *Chancellor Day Hall*
5560 Durocher St., Outremont

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WILLIAM ST. CLAIR BAULD, B.A. (Acadia), M.Sc. (Dal.), Ph.D. (Edin.), M.D., C.M., L.R.C.P. (Eng.), L.R.C.S. (Eng.), L.R.F.P. & S.
Lecturer in Medicine and in Clinical Medicine — *Medical Building*
156 Cornwall Ave., Town of Mount Royal

HAMILTON A. BAXTER, D.D.S., M.D., C.M., M.Sc.
Lecturer in Surgery — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

JAMES D. BAXTER, M.Sc., M.D. C.M.
Demonstrator in Otolaryngology — *1509 Sherbrooke St. W.*

ROBERT GORDON BAXTER, M.D., C.M.
Demonstrator in Medicine — 3448 Peel St.

STEWART G. BAXTER, M.D., C.M., M.Sc., Ph.D.
Assistant Professor of Surgery — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

CHARLES CALVERT BAYLEY, M.A. (Manchester), Ph.D. (Chicago)
Associate Professor of History — *Arts Building*
3566 University St.

A. RANDOLPH BAZIN, M.B., Ch.B. (Edin.), B.A.
Demonstrator in Surgery — *Montreal General Hospital*
1414 Drummond St.

EARL FRANCIS BEACH, B.A. (Queen's), A.M., Ph.D. (Harvard)
Bronfman Professor of Economics — *Purvis Hall*
508 Victoria Ave., Westmount

M. GLADYS BEAN, M.A. (Columbia), B.A., Dip. M.S.P.E.
Assistant Professor in the Department of Athletics, Physical Education, and Recreation — *Royal Victoria College*
Apt. 5, 1466 Mansfield St.

HARVEY E. BEARDMORE, M.D., C.M., F.R.C.S.(C)
Hosmer Teaching Fellow of Surgery — *Montreal Children's Hospital*
528 Mount Pleasant Ave.

JACQUES BEAUBIEN, B.Sc., M.D., C.M., Dipl. Psychiat.
Lecturer in Psychiatry — 900 Sherbrooke St. W.

JOHANNES CHRISTIAN BECK, M.D., C.M., M.Sc., Dipl. Int. Med.
Assistant Professor and Markle Fellow in Medicine
University Clinic, Royal Victoria Hospital
592 Kenaston Rd., Town of Mount Royal

ROBERT EDWARD BELL, M.A. (U.B.C.), Ph.D.
Associate Professor of Physics — *Radiation Laboratory*
27 Swallow Ave., Strathmore

ARTHUR BELMONT, B.A. (California), M.S. (U.C.L.A.)
Research Associate in Geography — *539 Pine Ave. W.*
327 Rosevear Ave., St. Lambert

BRUNO GEORG BENFEY, M.D. (Hamburg)
Assistant Professor of Pharmacology — *Biological Building*
Apt. 14, 3335 Ridgewood Ave.

BEN BENJAMIN, B.A., M.D., C.M., F.A.A.P.
Lecturer in Paediatrics — *Montreal Children's Hospital*, 665 Cote St. Antoine Rd.

RICHARD CARLTON BENNETTS, A.B. (California), M.D., C.M.
Assistant Professor of Medicine — *Montreal General Hospital*, 4250 Sherbrooke St. W.

EDWARD HORTON BENSLEY, M.B.E., B.A., M.D (Tor.), F.A.C.P.
Associate Professor of Experimental Medicine, Lecturer in Health and Social Medicine, and Assistant Director of the University Medical Clinic — *Montreal General Hospital*

WILLIAM BENTLEY, C.G.A., F.C.I.S., R.I.A.
Bursar and Secretary of the Board of Governors; Building Director of Dawson Hall — *Dawson Hall*, Apt. 2, 3578 University St.

CONSTANCE ELIZABETH BERESFORD-HOWE, Ph.D. (Brown), M.A.
Assistant Professor of English — *Arts Building*, 4137 Oxford Ave.

NIYAZI BERKES, Licence-ès-Lettres (Istanbul), Docent (Ankara)
Associate Professor in the Institute of Islamic Studies — *Divinity Hal*, Apt. 5, 3520 McTavish St

NORMAN JOHN BERRILL, B.Sc. (Bristol), Ph.D., D.Sc. (Lond.), F.R.S.C., F.R.S.
Strathcona Professor of Zoology — *Biological Building*, Apt. 1, 3521 University St.

GILLES BERTRAND, M.D. (Montréal), M.Sc.
Lecturer in Neurology and Neurosurgery and Assistant Neuropathologist — *Montreal Neurological Institute*, 5620 Decelles Ave.

ROBERT S. BIGELOW, B.Sc.(Agr.)
Assistant Professor of Entomology — *Macdonald College*

DALBIR BINDRA, A.M., Ph.D. (Harvard)
Associate Professor of Psychology — *Peterson Hall*, Apt. 207, 3490 McTavish St.

JOHN BRIAN BIRD, M.A. (Cantab.)
Associate Professor of Geography — *539 Pine Ave. W.*, 27 Lombardie St., Preville

RICHARD I. BIRKS, B.A., M.Sc.
Demonstrator in Physiology — *Biological Building*, Apt. 11, 3280 Ridgewood Ave.

MARION K. BIRMINGHAM (MRS. L. W.), B.A. (Bennington), M.Sc., Ph.D.
Lecturer in Psychiatry — *Allan Memorial Institute*, 526 Lakeshore Rd., Beaurepaire

ALBERT L. BISSONNETTE, B.C.L.
Lecturer in Law — *Chancellor Day Hall*, 29 Bayview Ave., Pointe Claire

PETER RAYMOND BLAHEY, B.A. (Sask.), M.D. (Tor.), M.R.C.O.G., F.R.C.S. (C.)
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*, Suite 1, 1374 Sherbrooke St. W.

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JOHN BLAND, B.Arch., A.M.T.P.I. (Lond.), M.R.A.I.C., A.R.I.B.A.
Director of the School of Architecture and Professor of Architecture
3484 University St.
P.O. Box 454, Ste. Anne de Bellevue

FRITZ BLANK, D.Sc. (Nat. Sci.), D.Sc. (Tech. Sci.) (Fed. Inst. Tech., Zurich)
Assistant Professor of Bacteriology — *Pathological Institute*
582 Davaar Ave.

VICTOR BLOCK, M.A.
Lecturer in German — *Arts Building*
45 Thornhill Ave., Westmount

HELMUT BLUME, Mus.B. (Berlin Acad. Music)
Associate Professor of Music — *Conservatorium of Music*
2340 Cote St. Catherine Rd.

JACOB HAROLD BLUMENSTEIN, M.A., B.C.L.
Lecturer in Law — *Chancellor Day Hall*
4815 Queen Mary Rd.

THOMAS J. BOAG, M.B., Ch.B. (Liverpool)
Lecturer in Psychiatry — *Allan Memorial Institute*
Apt. 201, 1102 Elgin Terrace

ROBERT STANLEY BOIRE, B.Com., C.A.
Lecturer in the School of Commerce — *Purvis Hall*
Apt. 3, 4310 Old Orchard Ave.

WILLIAM G. BOLL, B.Sc., Ph.D. (Manchester)
Assistant Professor of Botany — *Biological Building*
Apt. 14, 4085 Nelligan St.

WILLIAM TRIPPE BOOTH, B.A.
Lecturer in English — *Arts Building*
Apt. 14, 4120 Benny Ave.

E. ROGER BOOTHROYD, B.Sc. (Bishop's), M.Sc., Ph.D.
Assistant Professor of Genetics — *Biological Building*
4226 Royal Ave., N.D.G.

CARLO GIOVANNI BOS, B.A., M.D., C.M.
Assistant Professor of Psychiatry — *Allan Memorial Institute*
3605 Marlowe Ave.

JEAN BOUCHARD, M.D. (Laval), D.M.R.E. (Cantab.)
Associate Professor of Radiology — *Royal Victoria Hospital*

F. MUNROE BOURNE, B.A. (Oxon.), B.A., M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine — *Montreal General Hospital*
Suite 316, 1414 Drummond St.

HILARY B. BOURNE, M.D., C.M.
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*
1509 Sherbrooke St. W.

REGINALD ALAN BOURNE, B.A., M.D., C.M.
Demonstrator in Ophthalmology — *Montreal General Hospital*
Suite 414, 1414 Drummond St.

PHYLLIS BOWERS, B.A. (Queen's)
Assistant Professor in the School for Teachers — *Macdonald College*

H. ANGUS BOWES, M.D. (Durham)
Lecturer in Psychiatry and Occupational Therapy — *Demonstrator in the School of Physical and* Ste. Anne's Hospital, Ste. Anne de Bellevue

JOHN WALLACE BOYES, M.Sc. (Sask.), Ph.D. (Wisconsin), M.A.I.C.
John and Anne Molson Professor of Genetics and Chairman of the Department
Biological Building
484 Strathcona Ave., Westmount

W. HOWARD BOYLES, D.D.S.
Assistant Professor of Dentistry 1538 Sherbrooke St. W.

JOACHIM OSCAR WOLFGANG BRABANDER, M.D., C.M.
Lecturer in Medicine *Royal Victoria Hospital*
1390 Sherbrooke St. W.

GEORGE ALFRED BRABANT, B.Sc. (Sir Geo. Williams), D.D.S.
Demonstrator in Dentistry *Donner Building*
6540 Somerled Ave.

G. ERIC BRADFORD, M.S. (Wisconsin), B.Sc.
Assistant Professor of Animal Husbandry *Macdonald College*

ROBERT IRWIN BRAWN, B.S. (Penn. State) (on leave of absence)
Associate Professor of Agronomy and Assistant Professor of Genetics
Macdonald College

IRVING BRECHER, Ph.D. (Harvard), B.A.
Associate Professor of Economics and Political Science *Purvis Hall*
2135 Eden Rd., Town of Mount Royal

MICHAEL BRECHER, Ph.D. (Yale), B.A.
Assistant Professor of Economics *Purvis Hall*
4812 Isabella Ave.

GRIFFITH C. BREWER, B.A.
Lecturer in English *Arts Building*
4262 de la Peltrie St.

DAVID CHRISTOPHER BRIGGS, B.Eng.
Demonstrator in Metallurgical Engineering *Physical Sciences Centre*
130 Milton St.

WILLIAM HAROLD BRITTAIN, M.S. in Agr., Ph.D. (Cornell), D Sc. (U.B.C.), B.S.A., LL.D., F.A.I., F.R.S.C.
Curator of Morgan Arboretum *Macdonald College*

PHILIP R. BROMAGE, M.B., B.Sc., M.R.C.S., L.R.C.P. (Lond.), D.A.
Lecturer in Anaesthesia *Royal Victoria Hospital*

WILLIAM E. BRONSTETTER, B.A., B.C.L.
Lecturer in Law *Chancellor Day Hall*
360 St. James St. W.

ALEXANDER BROTT, L.Mus.
Associate Professor of Music *Conservatorium of Music*
5459 Earnscliffe Ave.

GEORGE RAYMOND BROW, M.D., C.M., F.R.C.P. (C.), F.A.C.P.
Professor of Medicine *Royal Victoria Hospital*
1390 Sherbrooke St. W.

KEITH BROWN, B.A. (Cantab.)
Lecturer in English *Arts Building*
1465 Mackay St.

NORMAN BROWN, B.A., M.D., C.M.
Lecturer in Radiology *Montreal General Hospital*
32 Franklin St., Town of Mount Royal

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JOHN S. L. BROWNE, B.A., B.Sc. (Med.), M.D., C.M., Ph.D., F.A.C.P. F.R.C.P.(C.), F.R.S.C.
Professor of Investigative Medicine and Chairman of the Department
Royal Victoria Hospital

WILLIAM BRUCE, M.A.Sc. (Tor.), P.Eng., Mem. A.S.M.E.
Professor of Mechanical Engineering
Engineering Building
10445 St. Hubert St.

LAUDER BRUNTON, M.D., C.M., Dipl. Int. Med.
Demonstrator in Medicine
Royal Victoria Hospital
4500 Sherbrooke St. W.

JOHN STEPHEN BUBAR, M.Sc. (Penn. State), B.Sc.(Agr.)
Lecturer in Agronomy
Macdonald College

ERWIN E. BURBANK, D.D.S.
Demonstrator in Dentistry
1538 Sherbrooke St. W.

ARNOLD STANLEY VINCENT BURGEN, M.B., B.S., M.R.C.P. (Lond.)
Professor of Physiology
Biological Building
Apt. 17, 19 Cote St. Catherine Rd.

HUGH EDMUND BURKE, M.D., C.M., M.Sc., Ph.D.
Assistant Professor of Medicine and Lecturer in Health and Social Medicine
Royal Edward Laurentian Hospital
670 Victoria Ave., Westmount

B. DELISLE BURNS, B.A. (Cantab.), L.R.C.P. (Lond.), M.R.C.S. (Eng.)
Associate Professor of Physiology
Biological Building
4459 Harvard Ave.

FRANK L. BURNS, B.A. (Loyola), D.D.S.
Assistant Professor of Dentistry
1414 Drummond St.

MARTIN DUDLEY BURROW, M.Sc. (on leave of absence)
Assistant Professor of Mathematics
Engineering Building
5735 Cote des Neiges Rd.

WINSTON C. BUSHELL, D.D.S.
Professor of Prosthetic Dentistry
1538 Sherbrooke St. W.

CONSTANDINA A. BUTAS, M.D. (Cluj)
Assistant Professor of Bacteriology
Pathological Institute
1371 Pine Ave. W.

ALBERT ALEXANDER BUTLER, M.D., C.M.
Lecturer in Surgery
Royal Victoria Hospital
1538 Sherbrooke St. W.

PAUL LEO BUTZER, B.Sc. (Loyola), Ph.D. (Tor.) (on leave of absence)
Assistant Professor of Mathematics
Engineering Building
4314 Rosedale Ave.

KENNETH FREDERICK BYRD, B.Sc., M.A. (Lond.), A.C.A. (England and Wales), C.A. (S.A.)
Professor of Accountancy
Purvis Hall
4779 Meridian Ave.

CHARLES H. CAHN, M.D. (Tor.)
Demonstrator in Psychiatry
Allan Memorial Institute
6601 La Salle Blvd., Verdun

GEORGE BRADFORD CAIRD, B.A. (Cantab.), M.A., D.Phil. (Oxon.)
Professor of New Testament Language and Literature and Principal of the United Theological College
Divinity Hall
3508 University St.

KEITH BRENDON CALLARD, B.Sc. (Lond.)
Associate Professor of Economics
Purvis Hall
3490 Peel St.

ERIC OTTLEBEN CALLEN, B.Sc., Ph.D. (Edin.), F.L.S.
Assistant Professor of Plant Pathology
Macdonald College

ARCHIBALD F. CAMERON, D.D.S.
Lecturer in Dentistry
1414 Drummond St.

D. EWEN CAMERON, M.D. (Glasgow), D.P.M. (Lond.), F.R.C.P. (C.)
Professor of Psychiatry, Chairman of the Department, and Director of the Allan Memorial Institute of Psychiatry
Allan Memorial Institute

DOUGLAS GEORGE CAMERON, M.C., B.Sc. (Oxon. and Sask.), M.D., C.M., M.R.C.P. (Lond.)
Associate Professor of Medicine, Assistant Professor of Dentistry, and Assistant Director of the University Clinic
Montreal General Hospital
56 Berwick Ave., Town of Mount Royal

HAROLD CAMERON, M.B., Ch.B. (Edin.)
Demonstrator in Anaesthesia
Royal Victoria Hospital
63 Oakville Ave., Courtland Park, Dorval

THOMAS WRIGHT MOIR CAMERON, T.D., M.A., D.Sc. (Edin.), Ph.D. (Lond.), M.R.C.V.S. (Lond.), F.R.S.C.
Professor of Parasitology, Chairman of the Department, and Director of the Institute of Parasitology
Macdonald College

VIRGINIA CAMERON, B.A.
Assistant Registrar
Dawson Hall
Apt. 7, 2082 Sherbrooke St. W.

F. ELIZABETH CAMPBELL, B.Sc. (Alta.), A.T.C.M. (Tor.)
Lecturer in Household Science
Macdonald College

HYMAN CAPLAN, M.D., C.M.
Lecturer in Psychiatry
Montreal Children's Hospital
2082 Fulton Rd., Town of Mount Royal

CLIVE HARCOURT CARRUTHERS, B.A. (Oxon.), M.A. (Tor.), Ph.D.(Chicago)
Professor of Classical Philology (Post-retirement)
Arts Building
148 Wolseley Ave., Montreal West

JEAN GABRIEL CASTEL, B.Sc. (Aix-Marseilles), Dip.Inst.Comp.Law (Paris), LL.B. (Mich.)
Associate Professor of Law
Chancellor Day Hall
241 Clarke Ave., Westmount

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LLOYD ALBERT CASWELL, M.D., C.M. (Queen's)
Demonstrator in Medicine — *Montreal General Hospital*, 1610 Pine Ave. W.

GEORGE E. G. CATLIN, M.A. (Oxon.), Ph.D. (Cornell), F.R.S.L.
Visiting Bronfman Professor of Economics and Political Science — *Purvis Hall*, Windsor Hotel

CURTIS DRAKE CECIL, B.A. (Dartmouth), M.A. (Oxon.)
Lecturer in English — *Arts Building*, Apt. 3, 4652 Sherbrooke St. W.

HON. MR. JUSTICE GEORGE SWAN CHALLIES, M.A., M.C.L.
Lecturer in Law — Judges' Chambers, Old Court House

JOHN MCLEAN CHAMARD, D.D.S.
Demonstrator in Dentistry — 1374 Sherbrooke St. W.

YVONNE CHAMPIGNEUL, L.-ès-.L, Diplome d'Etudes Supérieures (Toulouse), Agrégée de l'Université de France, Certificat d'Aptitude Pédagogique
Assistant Professor of Romance Languages — *Arts Building*, Apt. 23, 418 Pine Ave. W.

VIRGINIA JEAN CHAPLIN, B.Sc.(H.Ec.)
Lecturer in Household Science — *Macdonald College*, Apt. 12, 4640 Grand Blvd.

JERZY GEORGE CHARASZ, B.Eng.
Demonstrator in Electrical Engineering — *Engineering Building*, Apt. 31, 3014 Van Horne Ave.

JOHN CHARLES CHERNA, Dipl. Ing. (Techn. Hoch., Zurich)
Assistant Professor of Mechanical Engineering — *Engineering Building*, Apt. 103, 5000 Clanranald Ave.

LLEWELLYN PARKER CHESNEY, M.D., C.M.
Demonstrator in Medicine — *Montreal General Hospital*, 1414 Drummond St.

ROBERT AVERY CHIPMAN, B.Sc. (Man.), Ph.D. (Cantab.), M.Eng., P.Eng.
Associate Professor of Electrical Engineering — *Engineering Building*, 3457 Northcliffe Ave.

RAE CHITTICK, B.Sc. (Columbia), M.A. (Stanford), M.P.H. (Harvard), LL.D. (Alta.), R.N.
Associate Professor of Nursing, Director of the School for Graduate Nurses, and Building Director of Beatty Hall — *Beatty Hall*, Apt. 508, 1555 Summerhill Ave.

RONALD VICTOR CHRISTIE, M.B., Ch.B. (Edinburgh), D.Sc., F.R.C.P. (Lond.), M.Sc.
Professor of Medicine, Chairman of the Department and Director of the University Clinic, Royal Victoria Hospital — *Royal Victoria Hospital*, 3582 University St.

JUNE CLARE, B.Sc., Ph.D. (Lond.)
Research Fellow in Biochemistry — *McGill-M.G.H. Research Institute*

DAVID SEDGEFIELD CLARK, B.Sc.(Agr.), C.S.M., C.F.T.A.
Lecturer in Agricultural Bacteriology — *Macdonald College*

THOMAS HENRY CLARK, A.M., Ph.D. (Harvard), F.G.S.A., F.R.S.C.
Logan Professor of Palaeontology and Chairman of the Department of Geological Sciences — *Physical Sciences Centre*
353 Chester Ave., Town of Mount Royal

DOUGLAS CLARKE, M.A., Mus.B. (Cantab.), F.R.C.M., F.R.C.O. (on leave of absence)
Professor of Music — *Conservatorium of Music*

JAMES DONALD CLEGHORN, E.D.
Curator of Zoology — *Redpath Museum*
Apt. 201, 4870 Cote des Neiges Rd.

ROBERT ALLEN CLEGHORN, M.D. (Tor.), D.Sc. (Aberdeen)
Associate Professor of Psychiatry and Lecturer in Medicine — *Allan Memorial Institute*
3160 St. Sulpice Rd.

YVES CLERMONT, B.Sc. (Montréal)
Assistant Professor of Anatomy — *Medical Building*
158 Montenach Ave., Longueuil

EDWARD THORBURN CLEVELAND, D.D.S.
Lecturer in Dentistry — 1414 Drummond St.

DONALD K. CLOGG, B.Sc., M.D., C.M.
Demonstrator in Paediatrics — *1509 Sherbrooke St. W.*
Apt. 2, 341 Graham Blvd., Town of Mount Royal

DONALD FRANCIS COATES, M.A. (Oxon.), B.Eng.
Assistant Professor of Civil Engineering — *Engineering Building*
Apt. 204, 3475 Ridgewood Ave.

EARL WILLIAM CODERRE, B.Eng.
Demonstrator in Chemical Engineering — *Physical Sciences Centre*
Apt. 46, 418 Claremont Ave., Westmount

JOSEPH COHEN, Q.C., B.C.L.
Lecturer in Law (Post-retirement) — *Chancellor Day Hall*
5003 Grosvenor Ave.

MAURICE SINGER COHEN, M.D., C.M., Cert. in Derm. and Syph. (R.C.P.S.)
Demonstrator in Medicine and in Clinical Medicine — *Royal Victoria Hospital*
Apt. 15, 1220 Bernard Ave.

MAXWELL COHEN, B.A., LL.B. (Man.), LL.M. (Northwestern)
Professor of Law — *Chancellor Day Hall*
Apt. 5, 3015 Sherbrooke St. W.

WILLIAM COHEN, B.A., M.D., C.M.
Demonstrator in Medicine — *Montreal General Hospital*
Suite 318, 1414 Drummond St.

DESMOND WILLIAM COLE, M.A. (U.B.C.)
Assistant Professor of English and Warden of Brittain Hall — *Macdonald College*

ROWAN C. COLEMAN, D.S.O., M.C., LL.B. (Dalhousie), B.A.
Director of the University Placement Service — *3574 University St.*

ALBERT JOSEPH COLLE, D.D.S.
Demonstrator in Dentistry — Suite 428, 1396 St. Catherine St. W.

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PETER COLLINS, Dip. in Arch. (Leeds College), M.A. (Manchester)
Associate Professor of Architecture — *3484 University St.*
417 Metcalfe Ave., Westmount

ROBERT HADDON COMMON, B.Sc., M.Agr. (Belfast), Ph.D., D.Sc. (Lond.), F.R.I.C.
Professor of Agricultural Chemistry and Chairman of the Department — *Macdonald College*

RADU PETER COMSA, Dipl. Ing. (Zurich), M.Eng., P.Eng., M.E.I.C.
Lecturer in Electrical Engineering — *Engineering Building*
Apt. 206, 3375 Ridgewood Ave.

WILLIAM VERNON CONE, B.Sc., M.D. (Iowa), F.R.C.S. (C.), F.R.S.C.
Professor of Neurosurgery — *Montreal Neurological Institute*

JAMES B. CONROY, B.A., M.D., C.M., Dipl. in Ophthal.
Demonstrator in Ophthalmology — *Montreal General Hospital*
4769 Sherbrooke St. W.

ETHEL B. COOKE, R.N.
Lecturer in Health and Social Medicine (Post-retirement)
490 Pine Ave. W.
830 Richmond Square

JAMES HAROLD COOPER, B.Sc. (Agr.), Mem. A.S.A.E., M.A.I.C.
Associate Professor of Agricultural Engineering — *Macdonald College*

JOHN COBB COOPER, A.B. (Princeton), LL.M.
Professor of International Air Law (Post-retirement)
Chancellor Day Hall

JOHN IRWIN COOPER, M.A. (Western Ont.), Ph.D.
Associate Professor of History — *Arts Building*
128 Prince Edward Ave., Valois

STUART R. COOPER, M.D., C.M.
Demonstrator in Medicine — *Royal Victoria Hospital*

GORDON ALLAN COPPING, M.D., C.M., M.R.C.P. (Lond.), F.R.C.P. (C.)
Assistant Professor of Medicine — *Montreal General Hospital*
4485 Sherbrooke St. W.

BRUNO CORMIER, B.A. (St. Mary's), M.D. (Montréal)
Lecturer in Psychiatry — *Allan Memorial Institute*
506 Pine Ave. W.

JAMES B. R. COSGROVE, M.Sc., M.D. (Man.), M.Sc. (Cantab.)
Assistant Professor and Research Fellow in Neurology and Neurosurgery — *Montreal Neurological Institute*
3306 Cedar Ave.

VIOLET L. COUGHLIN (MRS.), B.Sc., B.L.S.
Lecturer in the Library School — *Redpath Library*
3800 Wilson Ave.

JOHN GRAHAM COULSON, M.A. (Queen's), D.Sc. (Montréal)
Professor of Plant Pathology and Chairman of the Department — *Macdonald College*

ERIC M. COUNSELL, M.B.E., M.A. (Oxon.)
Associate Professor of Classics — *Arts Building*, Apt. 31, 3530 Ontario Ave.

W. MASON COUPER, B.Sc., M.D., C.M., F.R.C.S. (Edin. and C.)
Lecturer in Surgery — *Royal Victoria Hospital*, 1538 Sherbrooke St. W.

PETER VICTOR COVO, B.Eng.
Assistant Professor of Mechanical Engineering — *Engineering Building*, 635 Laurentien Blvd., St. Laurent

THOMAS ARCHIBALD COWAN, M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital*, 1414 Drummond St.

PHOEBE COX, A.B. (Mount Holyoke), M.D., C.M. (on leave of absence)
Assistant Professor of Anatomy — *Medical Building*, Apt. 202, 3430 McTavish St.

CARLETON CRAIG, B.A., M.Eng., P.Eng., M.E.I.C.
Professor of Civil Engineering — *Engineering Building*, 344 Metcalfe Ave., Westmount

GIBSON EDWARD CRAIG, B.Com., M.D., C.M., D.T.M.
Assistant Professor of Medicine — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

HARRY ISAAC CRAMER, B.Sc., M.D., C.M., F.A.C.P., F.R.C.P. (C.)
Lecturer in Medicine — *Royal Victoria Hospital*, 1462 Bishop St.

EARLE WILCOX CRAMPTON, B.S. (Connecticut), M.S. (Iowa), Ph.D. (Cornell), F.C.I.C., F.A.I.C., F.R.S.C.
Professor of Nutrition and Chairman of the Department — *Macdonald College*

FRANCES ELIZABETH CROOK, B.A. (Bishop's), M.Sc. (Bryn Mawr)
Assistant Professor in the School for Teachers — *Macdonald College*

CLARENCE R. CROWELL, B.A., M.Sc., Ph.D.
Lecturer in Physics — *Eaton Electronics Laboratory*, 663 Leduc St., St. Laurent

WILLIAM HARVEY CRUICKSHANK, M.D., D.P.H., D.Psych. (Tor.)
Lecturer in Health and Social Medicine — *490 Pine Ave. W.*, 1050 Beaver Hall Hill

EVERETT FRANCIS CRUTCHLOW, O.B.E., B.A., M.D., C.M.
Assistant Professor of Radiology and Consulting Physician to the Athletics Board — *Montreal General Hospital*, 74 Easton Ave., Montreal West

BASIL CUDDIHY, B.A. (Laval), M.D., C.M., F.C.C.P.
Demonstrator in Medicine — Apt. 1, 5591 Cote des Neiges Rd.

WILLIAM G. CULLEN, B.A., M.D. (Tor.)
Assistant Professor of Anaesthesia — *Queen Elizabeth Hospital*

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JOHN CULLITON, B.A. (Sask.), M.A.
Associate Professor of Economics — *Arts Building*
Apt. 3, 3515 Durocher St.

ROBERT MURRAY CUNNINGHAM, M.D. (Tor.), D.M.R.T. (Lond.)
Demonstrator in Radiology — *Royal Victoria Hospital*
223 Champlain St., Beloeil

ALEXANDER B. CURRIE, B.Com. (Queen's), M.A., M.Educ. (Alta.), Ph.D. (Lond.)
Associate Professor of Education — *Arts Building*
475 Prince Albert Ave., Westmount

CECIL CURRIE, Ph.D. (Harvard), M.A.
Associate Professor of Philosophy — *Arts Building*
284 Lockhart Ave., Town of Mount Royal

RICHARD EARL DAGG, D.D.S.
Assistant Professor of Dentistry — 1414 Drummond St.

DOUGLAS GEORGE DALE, D.V.M. (Tor.)
Assistant Professor of Animal Pathology and Chairman of the Department — *Macdonald College*

TRAVIS E. DANCEY, M.D., C.M.
Assistant Professor of Psychiatry — 1538 Sherbrooke St. W.

ANTONIO D'ANDREA, Ph.D. (Pisa)
Associate Professor of Italian Language and Literature — *Arts Building*
Apt. 104, 3425 Stanley St.

JAMES HILTON DARRAGH, M.D., C.M., F.R.C.P. (C.)
Demonstrator in Medicine — *Montreal General Hospital*
4616 Draper Ave.

HAROLD THOMAS DAVENPORT, M.B., Ch.B. (L'pool), M.R.C.S., L.R.C.P., D.A. (R.C.S., Eng.)
Assistant Professor of Anaesthesia — *Montreal Children's Hospital*
74 Wolseley Ave., Montreal West

TRAVOR BLAKELY DAVEY, B.Sc. (Man.)
Lecturer in Mechanical Engineering — *Engineering Building*
Apt. 16, 1580 Decarie Blvd., St. Laurent

JEAN DAVID, L.S.A. (Montréal), Ph.D. (California)
Assistant Professor of Horticulture — *Macdonald College*

MARGARET E. DAVIDSON, M.Sc.
Head Demonstrator-Curator in Zoology — *Biological Building*
16 Anwoth Rd.

HOWARD LeR. DAWSON, B.A., M.D., C.M.
Assistant Professor of Surgery — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

MARIUS LOUIS DE ANGELIS, B.Sc.(Lond.), M.Eng., A.C.G.I., M.C.A.P., P.Eng.
Lecturer in Physics (Post-retirement) — *Physics Building*
213 - 14th Ave., Richelieu

JOHN ERNEST DEBELLE, M.D., C.M., F.A.C.H.A.
Lecturer in Health and Social Medicine — *490 Pine Ave. W.*
6 Granville Rd., Hampstead

ROBERT GRAY DEFRIES, Ing. E.T.P. (Paris)
Superintendent of Buildings and Grounds — *3551 Carleton Rd.*
3535 Carleton Rd.

WALTER ANTHONY SCOTT DELONG, B.S.A. (Tor.), Ph.D. (Minnesota), M.Sc., F.C.I.C., F.A.I.C.
Professor of Agricultural Chemistry — *Macdonald College*

LAWRENCE J. W. DENNIS, A.R.C.M. (Lond.)
Instructor in Music — *Conservatorium of Music*
436 Maple Ave., St. Lambert

ORVILLE FREDERICK DENSTEDT, B.Sc. (Man.), Ph.D., F.C.I.C.
Associate Professor of Biochemistry — *Biological Building*
4167 Grand Boulevard

RONALD LYMAN DENTON, B.Sc., M.D., C.M.
Associate Professor of Pediatrics — *Montreal Children's Hospital*

GUY DESBARATS, B.Arch., M.R.A.I.C.
Sessional Lecturer in Architecture — *3484 University St.*
552 Lakeshore Rd., Beaurepaire

JOSEPH L. DE STEIN, B.Eng. (Sask.), M.Eng.
Associate Professor of Civil Engineering — *Engineering Building*
865 - 48th Ave., Lachine

HELEN LOUISE DEVEREAUX, M.A. (Tor.)
Assistant Professor in the School of Household Science — *Macdonald College*

JOAN ANDERSON DE VRIES (MRS. J.), B.A. (Dal.), M.D., C.M.
Lecturer in Bacteriology and Immunology — *Pathological Institute*
234 Ballantyne Ave. N., Montreal West

LOUIS D'HAUTESERVE, B.-ès-L. et -Ph., Licencié en Droit (Paris), M.A.
Assistant Professor of Romance Languages — *Arts Building*

J. CAMPBELL DICKISON, B.A., M.D., C.M., F.R.C.S.(C)
Lecturer in Surgery — *Montreal General Hospital*
1414 Drummond St.

HENRY GEORGE DION, B.Sc. Agric. (Sask.), Ph.D. (Wis.)
Vice-Principal of Macdonald College, Dean of the Faculty of Agriculture, and Professor of Soil Chemistry — *Macdonald College*

BENJAMIN K. DOANE, B.A. (Princeton), M.A. (Dal.)
Research Associate in Psychology — *Peterson Hall*
234 Strathearn Ave.

ANTHONY R. DOBELL, M.D., C.M.
Hosmer Teaching Fellow in Experimental Surgery — *Donner Building*
37 Highfield Ave., Town of Mount Royal

JAMES ROBERT DODDS, B.Sc. (U.N.B.), M.D., C.M. — 1414 Drummond St.
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*

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HAROLD SYLVESTER DOLAN, B.A., M.D., C.M. (Dal.), F.A.C.S.
Assistant Professor of Surgery — *Royal Victoria Hospital*, 1509 Sherbrooke St. W.

MAURICE LEE DONIGAN, D.D.S., F.I.C.D.
Associate Professor of Dentistry — 1414 Drummond St.

GRACE DONNELLY, B.A., M.D., C.M.
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*, Suite 311, 1414 Drummond St.

EUGENE SQUIRES DORION, B.A. (Ottawa), D.D.S.
Lecturer in Dentistry — Suite 710D, 1155 Metcalfe St.

HERBERT DÖRKEN, Ph.D. (Montréal)
Lecturer in Psychology — *Verdun Protestant Hospital*

SYDNEY I. DOUBILET, M.D., C.M., F.A.A.P.
Demonstrator in Paediatrics — *Montreal Children's Hospital*, Suite 705, 1538 Sherbrooke St. W.

REV. FRANCIS A. C. DOXSEE, B.A. (Oxon. and Tor.)
Honorary Lecturer in Religious Instruction — *Macdonald College*

JOHN ALEXANDER DRUMMOND, D.D.S. (Tor.), D.M.
Demonstrator in Surgery — *Royal Victoria Hospital*, 3555 Atwater Ave.

ROBERT NORMAN DRUMMOND, M.Sc.
Assistant Professor of Geography and Director of the McGill Sub-Arctic Research Station — *McGill Sub-Arctic Research Station, Knob Lake*

MARGARET H. DUBREUIL, M.A. (Aberdeen)
Sessional Lecturer in English and in Adult Education — *Macdonald College*

MARVIN DUCHOW, B.A. (N.Y.U.), M.A. (Rochester), Mus.B.
Acting Dean and Associate Professor of the Faculty of Music and Building Director of the Conservatorium of Music — *Conservatorium of Music*, 772 Davaar Ave., Outremont

LOUIS DUDEK, A.M. (Columbia), B.A., Ph.D. (Columbia)
Assistant Professor of English — *Arts Building*, 739 Allard Ave., Verdun

MAURICE R. DUFRESNE, M.D., C.M.
Demonstrator in Medicine — 1595 Prieur St.

JOHN SCOTT DUNBAR, M.D. (Tor.)
Assistant Professor of Radiology — *Montreal Children's Hospital*

MAXWELL JOHN DUNBAR, M.A. (Oxon.), Ph.D., F.R.G.S., F.A.G.S.
Associate Professor of Zoology — *Biological Building*, 488 Argyle Ave., Westmount

HUGH ALEXANDER G. DUNCAN, M.D., C.M.
Demonstrator in Ophthalmology — *Royal Victoria Hospital*, Suite 35, 1390 Sherbrooke St. W.

RUTH MARLOWE DUNCAN, B.A. (Man.), B.Sc. (P.Ed.)
Lecturer in Athletics — *Royal Victoria College*, Apt. 24, 1655 Lincoln Ave.

C. HOWARD DUNDASS, B.Sc. (Sir Geo. Williams), D.D.S.
Demonstrator in Dentistry — 4545 Sherbrooke St. W.

GEORGE M. DUNDASS, D.D.S.
Demonstrator in Dentistry — 4545 Sherbrooke St. W.

ROBERTA DUNDASS, M.Dent. (Michigan), D.D.S.
Lecturer in Dentistry — 4545 Sherbrooke St. W.

ELIZABETH N. DUNKIN
Lecturer in Physical and Occupational Therapy — *Beatty Hall*, 2290 Girouard Ave.

E. MELVILLE DUPORTE, B.S.A., M.Sc., Ph.D.
Professor of Entomology and Chairman of the Department — *Macdonald College*

SIMON DWORKIN, M.Sc., D.D.S., M.D., C.M.
Assistant Professor of Physiology — *Biological Building*, 1117 St. Catherine St. W.

INGE DYRENFURTH, Dr.Sc. (Heidelberg)
Lecturer in the University Clinic, Royal Victoria Hospital — *Royal Victoria Hospital*, Apt. 2, 420 St. Joseph Blvd. W.

THOMAS WILLIAM RUSSELL EAST, M.A. (Cantab.)
Research Associate and Sessional Lecturer in Physics — *Physics Building*, 5839 Coolbrooke Ave., N.D.G.

PETER G. EDGELL, B.A. (Bishop's), M.D., C.M., Dipl.Int.Med. (R.C.C.P.)
Lecturer in Psychiatry — *Montreal General Hospital*, 4484 Western Ave.

ALFRED ROBERT EDIS, B.Sc. (Lond.), B.Eng.
Associate Professor of Mechanical Engineering — *Engineering Building*, 224 Clement St.

RALPH S. EDMISON, B.Com. (Queen's), D.D.S.
Lecturer in Dentistry — 1390 Sherbrooke St. W.

FRANCIS ALEXANDER EDWARD, B.A., D.D.S.
Lecturer in Dentistry — Suite 816, 1414 Drummond St.

JOHN THOMAS EDWARD, D.Phil. (Oxon.), B.Sc., Ph.D.
Lecturer in Chemistry — *Chemistry Building*, 16 Jasper Ave., Town of Mount Royal

PHILIP ARON EDWARDS, B.Sc. (New York), M.D., C.M., F.R.C.P.
Lecturer in Medicine and in Clinical Medicine — *Royal Victoria Hospital*

S. EIDINGER, M.D., C.M., F.R.C.P. (C.)
Demonstrator in Medicine — *Montreal General Hospital*, 5000 Clanranald Ave.

LORNE ELIAS, B.Sc. (Carleton)
Research Associate in Chemistry — *Chemistry Building*, 97 James St.

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FREDERICK ELKIN, A.M., Ph.D. (Chicago)
Assistant Professor of Sociology — *Arts Building*, 7137 Chester Ave.

HAROLD WILLIAM ELLIOTT, B.Sc., M.D., C.M.
Assistant Professor of Neurology and Neurosurgery — *Montreal General Hospital*

KENNETH ALLAN CALDWELL ELLIOTT, M.Sc. (S.A.), Ph.D., D.Sc. (Cantab.)
Associate Professor of Experimental Neurology — *Montreal Neurological Institute*, 3440 Grey Ave.

GLADYS ELLISON, M.D. (Man.), F.R.C.P.S. (C.)
Lecturer in Anaesthesia — *Royal Victoria Hospital*, 3460 Simpson St.

JAMES THOMAS ELO, B.Sc. (Sir Geo. Williams), D.D.S.
Demonstrator in Dentistry — 1224 St. Catherine St W.

ARTHUR ROLAND ELVIDGE, M.D., C.M., M.Sc., Ph.D., F.R.C.S. (C.)
Assistant Professor of Neurology — *Montreal Neurological Institute*

LOUIS EPSTEIN, B.A., D.D.S.
Demonstrator in Dentistry — 1538 Sherbrooke St. W., 637 Lazard Ave., Town of Mt. Royal

LEMUEL PRICE EREAUX, B.Sc., M.D., C.M.
Associate Professor of Medicine — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

ROBERTO LIZARDO ESTRADA, B.Sc., M.D., C.M.
Demonstrator in Surgery — *Montreal General Hospital*, 1538 Sherbrooke St. W.

MICHEL EUVRARD, B. ès L. (Rennes), Licencié-ès-Lettres, Diplômé d'Etudes Supérieures (Paris), Agrégé de l'Université de France.
Assistant Professor of Romance Languages — *Arts Building*, Apt. 2, 3602 Durocher St.

DONALD FAIRBAIRN, B.A. (Queen's), Ph D. (Rochester)
Associate Professor of Parasitology — *Macdonald College*

SIN KAN FANG, B.Sc. (Chiao-Tung), B.Sc. (Manchester)
Lecturer in Mechanical Engineering — *Engineering Building*, Apt. 1-B, 5251 Victoria Ave.

FLORENCE AMELIA FARMER, B.H.S., M.Sc., Ph.D.
Assistant Professor of Nutrition — *Macdonald College*

GERALD WILLIAM FARNELL, B.A.Sc. (Tor.), S.M. (M.I.T.)
Assistant Professor of Electrical Engineering — *Engineering Building*, 6 Connaught Ave., Rosemere, Que.

YVONNE FEDERER, Dipl. Occup. Therapy
Demonstrator in the School of Physical and Occupational Therapy — *Beatty Hall*, Apt. 12, 3092 Goyer Ave.

NEIL FEENEY, B.A. (Loyola), M.D., C.M., F.A.C.P.
Associate Professor of Medicine — *Montreal General Hospital*, 1414 Drummond St.

GEORGE ANDREW FERGUSON, B.A. (Dal.), B.Ed., Ph.D. (Edin.)
Professor of Psychology — *Peterson Hall*, 1496 Bishop St.

ROBERT FERGUSON, M.B.E., M.D. (Tor.), F.I.C.A.
Assistant Professor of Anaesthesia — *Montreal General Hospital*, 739 Upper Belmont Ave.

H. NOEL FIELDHOUSE, B.A. (Oxon.), M.A. (Sheffield), F.R.S.C.
Dean of the Faculty of Arts and Science, Kingsford Professor of History, Chairman of the Department, and Director of the Arts Building — *Arts Building*, 3564 University St.

HAROLD G. FILES, A.M., Ph.D. (Harvard)
Chairman of the Humanities Group in the Faculty of Arts and Science and Greenshields Professor of English Literature — *Arts Building*, 366 Wood Ave., Westmount

SAMUEL FILLENBAUM, B.A. (City College of N.Y.), M.A., Ph.D. (California)
Research Associate in Psychology — *Peterson Hall*

GEORGE DAVID FINDLAY, B.Sc. (Glasgow), B.A. (Cantab.)
Assistant Professor of Mathematics — *3425 University St.*, 4874 Westmount Ave.

JOSEPH FINEBERG, D.D.S.
Demonstrator in Dentistry — 1625 Sherbrooke St. W.

HAY FINLAY, Dipl. M.S.P.E.
Business Manager in the Department of Athletics, Physical Education, and Recreation — *Currie Gymnasium*, 3375 Ridgewood Ave.

DUNCAN FISHWICK, B.A. (Manchester), M.A. (Oxon.)
Lecturer in Classics — *Arts Building*, Y.M.C.A. Building, Drummond St.

GUY HUBERT FISK, B.A., M.D., C.M., D.T.M. & H. (Eng.)
Associate Professor of Physical and Occupational Therapy and Director of the School — *Beatty Hall*, 592 Walpole Ave., Town of Mt. Royal

DONALD STITT FLEMING, D.P.H. (Tor.), B.A., M.D., C.M.
Associate Professor of Health and Social Medicine, Secretary of the Faculty of Medicine, Assistant to the Dean of Medicine and Assistant Director of the University Health Service — *Medical Building*, Apt. 8, 5552 Queen Mary Rd.

WILLIAM RODGERS FOOTE, B.A. (U.B.C.), M.D., C.M., M.R.C.O.G., F.A.C.S.
Assistant Professor of Obstetrics and Gynaecology — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

VIVIENNE MARY FORBES, B.Sc. (Alta.)
Demonstrator in Physics — *Physics Building*, Apt. 28, 3025 Sherbrooke St. W.

MCGILL UNIVERSITY LIBRARY

ROY FORSEY, M.D. (Tor.), F.R.C.P. (C.)
Associate Professor of Medicine — *Montreal General Hospital*, 1414 Drummond St.

DAVID S. FORSTER, M.D., C.M., M.A.
Assistant Professor of Anatomy (Post-retirement), 4405 Wellington St., Verdun

JOHN STUART FOSTER, Ph.D. (Yale), D.Sc. (Acadia), F.R.S.C., F.R.S.
Rutherford Professor of Physics and Director of the Radiation Laboratory — *Radiation Laboratory*, 615 Lansdowne Ave.

ALAN FREDERICK FOWLER, M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine — *Montreal General Hospital*, 232 Portland Ave., Town of Mount Royal

CHARLES FOX, M.A. (Cantab.), D.Sc. (Lond.)
Professor of Mathematics — *3425 University St.*, 381 Prince Albert Ave., Westmount

LYMAN ELWOOD FRANCIS, D.D.S.
Demonstrator in Dentistry, 4637 Sherbrooke St. W.

WILLIAM WILLOUGHBY FRANCIS, A.B., M.D. (Johns Hopkins), M.D., C.M. (ad eun.)
Librarian, Osler Library — *Medical Building*, 570 Milton St.

BRUNO L. FRANK, B.Sc., M.D., PhD., D.P.H. (Lond.), L.R.C.P. (Lond.), M.R.C.S. (Eng.)
Lecturer in Therapeutics in the Department of Medicine, 1290 Pine Ave. W.

SAUL FRANKEL, M.A.
Assistant Professor of Economics — *Purvis Hall*, 599 Westluke Ave.

GERALD FRANKLIN, D.D.S., F.I.C.D., F.A.C.D.
Professor of Orthodontia, 3555 Atwater Ave.

DOUGLAS MACLEAN FRASER, B.Sc. (Dalhousie)
Lecturer in Agricultural Physics — *Macdonald College*

F. CLARKE FRASER, B.Sc. (Acadia), M.D., C.M., M.Sc., Ph.D.
Associate Professor of Genetics and Demonstrator in Paediatrics — *Biological Building*, Apt. 106, 3570 Ridgewood Ave.

ROBERT GORDON FRASER, M.D. (Man.)
Assistant Professor of Radiology — *Royal Victoria Hospital*, 168 Carlyle Ave., Town of Mount Royal

F. OWEN FREDERICK, B.A. (Bishop's), D.D.S.
Demonstrator in Dentistry, 1538 Sherbrooke St. W.

DOROTHY RUTH FREEMAN (MRS. J.), B.A., Dipl. Soc. Wk.
Assistant Professor in the School of Social Work — *3600 University St.*, 4964 Fulton St.

KATHLEEN M. FRICKER, M.A.
Lecturer in English — *Arts Building*, Apt. 38, 456 Pine Ave. W.

JACOB FRIED, A.B. (Temple), Ph.D. (Yale)
Assistant Professor of Sociology — *Arts Building*, 2054 Victoria St.

HELEN FRIEDMAN-BRICKMAN (MRS. M. BRICKMAN), M.D. (Man.)
Demonstrator in Paediatrics — *Montreal Children's Hospital*, 1538 Sherbrooke St. W.

STANLEY BRICE FROST, B.D., M.Th. (Lond.), D.Phil. (Mayburg Univ.)
Professor of Divinity — *Divinity Hall*, 4251 Hampton Ave.

CHARLES WATSON FULLERTON, M.D., C.M., F.A.C.P.
Associate Professor of Medicine and of Therapeutics — *Montreal General Hospital*, 1414 Drummond St.

HUMBERTO GARCIA-AROCHA, M.D. (Universidad Central de Venezuela)
Associate Professor of Physiology — *Biological Building*, 5603 Queen Mary Rd.

CAMPBELL MCGREGOR GARDNER, M.D., C.M., F.R.C.S. (Eng. and C.), F.A.C.S.
Assistant Professor of Surgery — *Montreal General Hospital*, 1414 Drummond St.

PHILIP GARIGUE, B.Sc. (Econ.), Ph.D. (Lond.)
Assistant Professor of Sociology and Anthropology — *Arts Building*, 5349 Duquette Ave.

HELEN MARY GAULT, B.Sc. (P.&O.T.), T.M.M.G., T.M.E. (Eng.)
Assistant Professor in the School of Physical and Occupational Therapy — *Beatty Hall*, Apt. 7, 4131 Cote des Neiges Rd.

THOMAS J. GAVRILOFF, B.Sc., D.D.S.
Demonstrator in Dentistry — 1410 Guy St.

JULIUS G. GAZDIK, D.C.L., Dr. Pol. Sc. (Pecs), M.C.L.
Lecturer in Law and Secretary of the Institute of International Air Law — *Chancellor Day Hall*, 4497 Sherbrooke St. W.

AUBREY KENT GEDDES, M.D., C.M.
Associate Professor of Paediatrics — 1509 Sherbrooke St. W.

HELEN MARY GEMEROY (MRS. G. A.), R.N.
Lecturer in the School for Graduate Nurses — *Beatty Hall*, Apt. 17, 521 Prince Arthur St.

JOHN WILFRID GERRIE, B.A., D.D.S. (Alta.), M.D., C.M., D.L.O. (R.C.P. & S.)
Professor of Dentistry and Assistant Professor of Surgery — 1414 Drummond St.

THELMA PEARL GERSTMAN, B.Sc. (Phys.Ed.)
Instructor in Athletics and Physical Education — *Royal Victoria College*, Apt. 11, 1615 Lincoln Ave.

R. DARNLEY GIBBS, Ph.D. (Lond.), M.Sc., F.L.S., F.R.S.C.
Professor of Botany and University Gardenmaster — *Biological Building*, 3450 McTavish St.

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CUTHBERT G. GIFFORD, D.F.C., M.S.W. (Pittsburgh), B.A.
Assistant Professor in School of Social Work — *3600 University St.*
4375 King Edward Ave.

RICHARD GEORGE BARTON GILBERT, M.B., B.Sc. (Lond.), Dipl. Anaes. (R.C.P. & S.), L.R.C.P. (Lond.), M.R.C.S. (Eng.), F.A.C.A.
Assistant Professor of Anaesthesia — *Montreal Neurological Institute*
3156 Westmount Blvd.

JAMES EDWARD GILL, Ph.D. (Princeton), B.Sc., F.R.S.C.
Professor of Geological Sciences — *Physical Sciences Centre*
3 Lilac Ave., Dorval

LESLEY ANDREW GILL, B.A., D.D.S.
Demonstrator in Dentistry
4637 Sherbrooke St. W.

KENNETH F. GIRARD, B.Sc. (Siena, Albany, N.Y.), M.Sc., Ph.D.
Assistant Professor of Bacteriology — *Pathological Institute*
4863 King Edward Ave.

CLAUDE JEAN-PIERRE GIROUD, M.D. (Paris), Ph D.
Lecturer in Investigative Medicine — *Room 106, Medical Building*
Apt. C, 456 Pine Ave. W.

GRACE T. GIRVIN, B.A. (Hunter), M.Sc., Ph.D., R.N.
Assistant Professor of Bacteriology — *Pathological Institute*
3530 Durocher St.

PHILIP J. GITNICK, D.D.S.
Lecturer in Dentistry
1414 Drummond St.

PIERRE GLOOR, M.D. (Basle)
Lecturer and M.N.I. Research Fellow — *Montreal Neurological Institute*
7777 Stuart Ave.

JOHN STODDART GODARD, B.Sc., M.C.I.M.M., M.A.I.M.E., P.Eng.
Associate Professor of Mineral Dressing — *Physical Sciences Centre*
15 Brock Ave. S., Montreal West

ALLEN GOLD, M.D., C.M., M.Sc., F.R.C.P. (C.)
Demonstrator in Medicine — *Montreal General Hospital*
1610 Pine Ave. W.

SIMON GOLD, B.Sc., M.D., C.M.
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

VICTOR CHARLES GOLDBLOOM, B.Sc., M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital*
1538 Sherbrooke St. W.

ALEC L. GORDON, B.Sc., M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine
1610 Pine Ave. W.

COLIN DOUGLAS GORDON, B.A. (Alta.), M.A., Ph.D. (Michigan)
Assistant Professor of Classics — *Arts Building*
144 Broadview Ave., Valois

DONALD CURRY GORDON, B.Sc. (Acadia), D.D.S.
Associate Professor of Dentistry
1414 Drummond St.

DAVID A. I. GORING, B.Sc. (Lond.), Ph.D. (Cantab. and McGill)
Research Associate in Chemistry — *Chemistry Building*, 6129 Somerled Ave.

BERNARD GRAD, B.Sc., Ph.D.
Lecturer in Psychiatry — *Allan Memorial Institute*, Apt. 4, 4145 Decarie Blvd.

WILLEM LAURENS GRAFF, Ph.D. (Louvain)
Professor of German (Post-retirement) and Acting Chairman of the Department — *Arts Building*, 4045 Wilson Ave.

BERNARD GRAHAM, B.A., B.Sc., M.D., C.M. (Dal.)
Lecturer in Neurology and Registrar at the Neurological Institute — *Montreal Neurological Institute*, 25 Melbourne Ave.

WILLIAM FREDERICK GRANT, B.A. (Manchester), M.A. (McMaster), Ph.D. (Univ. of Virginia)
Assistant Professor of Genetics — *Macdonald College*

PERCY HEATH HOBART GRAY, M.A. (Oxon.), D.Sc. (Lond.)
Professor of Agricultural Bacteriology and Chairman of the Department — *Macdonald College*

STANLEY MATTHEW GREENHORN, B.A. (U.B.C.), M.D., C.M.
Demonstrator in Pathology — *Pathological Institute*, Room 9, 3577 Peel St.

MARGARET C. GREENWAY
Demonstrator in Physical and Occupational Therapy — *Royal Edward Laurentian Hospital*, Apt. 6, 1643 Lincoln Ave.

HAROLD RANDALL GRIFFITH, M.M., M.D. (Hahnemann, Phila.), B.A., M.D., C.M., F.A.C.A., F.I.C.A., F.F.A.R.C.S.
Professor of Anaesthesia and Chairman of the Department — *Queen Elizabeth Hospital*

HARRY E. GRIFFITHS, M.A. (Middlebury), B.Com.
Associate Professor and Director of Department of Athletics and Director of Sir Arthur Currie Memorial Gymnasium — *The Gymnasium*, 3606 Marlowe Ave.

MARGARET GRIFFITHS, B.A. (Western Ont.), Dipl. Soc. Wk. (Tor.)
Assistant Professor and Field Unit Supervisor in the School of Social Work — *3600 University St.*, 456 Mountain Ave., Westmount

GEORGE ANDREW GRIMSON, B.Com.
Comptroller — *Dawson Hall*, 4043 Marlowe Ave., N.D.G.

ARNOLD GROSSMAN, M.D., C.M.
Demonstrator in Otolaryngology — *Montreal General Hospital*, Suite 320, 1538 Sherbrooke St. W.

T. IVAN GUILBOARD, B.A. (Loyola), D.D.S.
Assistant Professor of Dentistry — 1411 Stanley St.

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KENRICK LEWIS STUART GUNN, B.A. (Western Ont.), M.Sc., Ph.D.
Associate Professor of Physics and Research Supervisor *Physics Building*
578 Lansdowne Ave.

FRASER NEWMAN GURD, M.Sc.(Med.) (Pennsylvania), M.D., C.M., F.R.C.S. (C.)
Lecturer in Surgery 1538 Sherbrooke St. W.

BURT BARLOW HALE, M.D., C.M.
Demonstrator in Radiology *Royal Victoria Hospital*
5205 Hingston Ave.

GEORGE K. HALE, D.D.S.
Demonstrator in Dentistry 114 Second St., St. Lambert

THOMAS REID HALE, M.D., C.M., F.R.C.P. (C.)
Demonstrator in Medicine *Montreal General Hospital*
2224 Maple Ave., St. Lambert

C. WAYNE HALL, M.A. (Bishop's)
Professor in the School for Teachers *Macdonald College*

GERALD WINTER HALPENNY, B.Sc. (in Arts), M.D., C.M., F.R.C.P. (C.), F.A.C.P.
Lecturer in Medicine *Montreal General Hospital*
1414 Drummond St.

LIONEL HIBBERT HAMILTON, B.S.A. (Tor.), M.S. (Wisconsin)
Associate Professor of Animal Husbandry and Chairman of the Department
Macdonald College

MARY E. HAMILTON
Demonstrator in the School of Physical and Occupational Therapy
Queen Mary Veterans Hospital

REGINALD CLARENCE MACKENZIE HAMILTON, E.D., M.Sc., M.D. (Alta.)
Lecturer in Psychiatry Ste. Anne's Hospital, Ste. Anne de Bellevue

LAWRENCE GARTH HAMPSON, M.Sc., M.D., C.M., F.R.C.S. (C.)
Demonstrator in Surgery *Montreal General Hospital*
4270 Cavendish Blvd.

JOAN M. HANNA, B.A.
Assistant Professor of Education *Macdonald College*
5025 Clanranald Ave.

FRANK KEITH HANSON, Mus.D.
Professor of Education (Music) in the School for Teachers
Macdonald College
20787 Lake Shore Rd., Baie d'Urfe

FREDERICK RAYMOND HANSON, B.Sc. (Wisconsin), M.D. (Nebraska) (on leave of absence)
Assistant Professor of Psychiatry 8 East 96th St., New York 21, N.Y.

RICHARD GEORGE M. HARBERT, B.Sc., M.D., C.M.
Lecturer in Medicine *Montreal General Hospital*
1538 Sherbrooke St. W.

F. KENNETH HARE, B.Sc. (Lond.), Ph.D. (Montréal), F.R.G.S., F.R.Met.S.
Professor of Geography, Chairman of the Department, Director of the Sub-Arctic Research Laboratory, and Building Director of the Meteorological Observatory and Geography Building — *539 Pine Ave.*
25 rue de Lombardie, Previlles

PATRICIA MARIE HARNEY, B.Sc. (Agr.)
Lecturer in Horticulture — *Macdonald College*

ELEANOR MACKENZIE HARPUR, A.B. (Smith), M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital*

ROBERT PETER HARPUR, B.Sc. (N.Z.), M.Sc., Ph.D.
Assistant Professor of Parasitology — *Macdonald College*

CECIL HARRIS, B.Sc., M.D. (Glasgow)
Lecturer in Medicine — 74 Fieldfare Ave., Beaurepaire

LEONARD BERNARD HARROP, B.A., Dip. Ed. (Western Australia), Dip. Estud. Hisp. (Santander), M.A. (Interamericana, Mexico), F.I.L.
Associate Professor of Spanish — *Arts Building*
Apt. 69, 3515 Durocher St.

MONICA HARVEY, Doctorate (Madrid Univ.)
Lecturer in Romance Languages — *Arts Building*
Apt. 8, 2066 Decarie Blvd.

ROBERT FREDERICK HARVEY, D.D.S.
Lecturer in Dentistry — 4695 Sherbrooke St. W.

WILLIAM H. HATCHER, M.Sc., Ph.D., F.C.I.C., F.R.S.C.
Chairman of the Physical Sciences Group in the Faculty of Arts and Science, Professor of Chemistry, and General Director of the Physical Sciences Centre — *Physical Sciences Centre*
4992 King Edward Ave.

FRANCES ANNA HAVILAND (MRS. W. E.), B.A. (Tor.)
Sessional Lecturer in Education — *Macdonald College*

WILLIAM E. HAVILAND, B.A. (McMaster), M.A. (Tor.), A.M., Ph.D. (Harvard)
Associate Professor of Agricultural Economics — *Macdonald College*

STUART CHRISTOPHER MCLEAN HAWKINS, Doctorat (Paris), M.A.
Associate Professor in the School for Teachers — *Macdonald College*

ALAN B. HAWTHORNE, B.A., M.D., C.M.
Assistant Professor of Surgery — *Royal Victoria Hospital*
1538 Sherbrooke St. W.

RANKIN K. HAY, M.B., B.S. (Durham), F.R.C.S.
Demonstrator in Neurology and Neurosurgery — *Montreal General Hospital*

ROBERT DONALD HOSKIN HEARD, M.A. (Tor.), Ph.D. (Manchester), F.R.S.C.
Associate Professor of Biochemistry — *Biological Building*
4528 Wilson Ave.

DONALD O. HEBB, B.A. (Dal.), Ph.D. (Harvard), M.A.
Professor of Psychology and Chairman of the Department — *Donner Building*
63 Nelson St., Montreal West

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MARCEL HEBERT, B.A. (Loyola), D.D.S.
Demonstrator in Dentistry 1455 Crescent St.

ANGELA HEFFERMAN, M.B., B.S. (Lond.), M.R.C.S. (Eng.), Dipl. in Psychiat.
Demonstrator in Psychiatry *Montreal Children's Hospital*
3440 Peel St.

LEON HELLER, M.S. (Wisconsin), M.D., C.M.
Sessional Lecturer and Honorary Demonstrator in Anatomy
4735 Cote St. Catherine Rd.

IRVING H. HELLER, M.Sc., M.D., C.M.
Demonstrator and M.N.I. Research Fellow Apt. 4, 2100 Claremont Ave.

JOYCE HEMLOW, M.A. (Queen's), A.M., Ph.D. (Harvard)
Professor of English *Arts Building*
Apt. 106, 3555 Atwater Ave.

MYER HENDELMAN, M.D., C.M., F.R.C.S. (C.)
Lecturer in Obstetrics and Gynaecology 1374 Sherbrooke St. W.

LEWIS RUFF HENDERSON
Demonstrator in Neurology and Instructor in the Electroencephalography Laboratory *Montreal Neurological Institute*
7261 Marquette St.

THOMAS GREENSHIELDS HENDERSON, Ph.D. (Harvard), M.A.
Professor of Philosophy and Chairman of the Department
Arts Building
1556 Summerhill Ave.

GERALD OWEN HENNEBERRY, B.Sc. (Dal.), M.Sc.
Lecturer in Agricultural Chemistry *Macdonald College*

ARTHUR MUNROE HENRY, B.A. (Lond.), M.A.
Associate Professor of Education in the School for Teachers
Macdonald College

DONALD W. HENRY, B.A. (Bishop's), D.D.S.
Lecturer in Dentistry 1534 Crescent St.

ROBINA ELIZABETH HENRY (MRS. H. L.), M.A. (Dublin)
Assistant Professor of Romance Languages *Arts Building*
154 Wolseley Ave., Montreal West

ERICH HERBST
Lecturer in Mechanical Engineering *Engineering Building*
Apt. 8, 5000 Clanranald Ave.

WOODBURN HERON, M.A., Ph.D.
Assistant Professor of Psychology *Peterson Hall*
Apt. 3, 3450 Durocher St.

MICHAEL HERSCHORN, B.A.
Lecturer in Mathematics *3425 University St.*
Apt. 6, 5400 Randall Ave.

NORAH HILDEBRAND, M.Sc.
Sessional Lecturer in Physiology *Biological Building*
Hudson

WALTER HENRY PHILIP HILL, B.A., M.D., C.M., M.R.C.P. (Lond.), F.R.C.P. (C.)
Associate Professor of Medicine *Royal Victoria Hospital*
3448 Peel St.

THEODORE LEWIS HILLS, M.A. (Canterbury)
Assistant Professor of Geography — *539 Pine Ave.*, Apt. 3, 3500 Shuter St.

LLOYD GEORGE HISEY, M.D. (Tor.)
Lecturer in Psychiatry — *Allan Memorial Institute*, 5249 Prince of Wales Ave.

WALTER F. HITSCHFELD, B.A.Sc. (Tor.) Ph.D.
Assistant Professor of Physics — *Physics Building*, 4021 Grand Blvd., N.D.G.

MARTIN MANDELL HOFFMAN, B.A. (Mt. Allison), M.Sc. (Dal.), M.D., C.M., Ph.D.
Associate Professor of Medicine and of Psychiatry
Allan Memorial Institute, 608 Victoria Ave., Westmount

TERENCE WILLIAM HOFFMAN, M.Sc.
Lecturer in Chemical Engineering — *Physical Sciences Centre*, Apt. 4, 4870 Walkley Ave.

PETER JOSEPH HOGAN
Business Manager and Building Director of the Montreal Neurological Institute — *Montreal Neurological Institute*, 5470 - 15th Ave., Rosemount

LOWELL EDWARD HOKIN, M.D. (Louisville), Ph.D. (Sheffield)
Assistant Professor of Pharmacology — *Biological Building*, 5242 Mariette Ave.

ROBERT KIRKWOOD HOLCOMB, B.S.A., Ph.D.
Assistant Professor of Chemistry — *Chemistry Building*, 4590 Wilson Ave.

G. ALLISON HOLLAND, B.Com., M.D., C.M., F.R.C.S. (C.)
Lecturer in Surgery and Physician in the Student Health Service
Montreal General Hospital, 1610 Pine Ave. W.

JOHN HERBERT HOLTON, B.Com. (Tor.)
Secretary and Assistant Bursar at Macdonald College — *Macdonald College*

F. ISABEL HONEY, M.A. (Tor.)
Associate Professor of Home Economics and Acting Director of the School of Household Science — *Macdonald College*

THOMAS D. HOPE, D.D.S.
Demonstrator in Dentistry — Hudson Heights

JAMES F. HOPKIRK, B.Sc., M.D., C.M. (Dal.), F.R.C.S. (C.)
Demonstrator in Surgery — *Royal Victoria Hospital*, 3448 Peel St.

ESAU HOSEIN, M.Sc., Ph.D.
Sessional Lecturer in Biochemistry — *Biological Building*, Apt. 24, 2165 Lincoln Ave.

JOAN HOSSACK, Dipl. in Occ. Ther. (Tor.)
Demonstrator in the School of Physical and Occupational Therapy
1031 Ottawa St., 634 Prince Arthur St. W.

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DAVID A. HOWELL, M.B., B.S. (Lond.), M.R.C.S. (Eng.)
Lecturer in Neurology — *Montreal General Hospital*

FREDERICK STANLEY HOWES, Ph.D. (Lond.), D.I.C. (Imperial College), M.Sc., F.I.R.E., P.Eng.
Director of University Extension and Professor of Electrical Engineering — *Dawson Hall*
Apt. 412, 3375 Ridgewood Ave.

JOHN GERRARD HOWLETT, M.D., C.M., M.Sc., M.R.C.P. (Lond.), F.R.C.P.(C.)
Associate Professor of Medicine — *Royal Victoria Hospital*
3448 Peel St.

BRIAN RALPH HUNT, B.A., Ch.B. (Oxon.), L.D.C.C.
Demonstrator in Psychiatry — *Allan Memorial Institute*
955 McNaughton Rd., Town of Mount Royal

EDITH HUNTER
Assistant Warden of Stewart Hall — *Macdonald College*

ROBIN CYRIL ADAIR HUNTER, M.D., C.M.
Demonstrator in Psychiatry — *Allan Memorial Institute*
1290 Pine Ave. W.

ELEANOR W. HURD (MRS. G. T.), B.Sc. (Alta.), M.P.H. (Michigan), Cert. Sch. Grad. N.
Assistant Professor in School for Graduate Nurses — *Beatty Hall*
1546 McGregor St.

R. LEIGHTON HUTSON, M.A. (Montreal), B.A.
Demonstrator in Psychiatry — *Allan Memorial Institute*

REED WARREN HYDE, M.D., C.M., F.R.C.S. (C.)
Demonstrator in Otolaryngology — 4459 Sherbrooke St. W.

S. S. HYDER, B.S. (Aligarh, U.P.)
Lecturer in Mechanical Engineering — *Engineering Building*
3630 Hutchison St.

GEORGE DONALD JACKSON, B.A. (Manitoba), M.A. (Tor.)
Lecturer in Romance Languages — *Arts Building*
Apt. L-19, 1380 Decarie Blvd., Ville St. Laurent

J. DAVID JACKSON, B.Sc. (Western Ont.), Ph.D. (M.I.T.) (on leave of absence)
Associate Professor of Mathematics — *Physical Sciences Centre*
5245 Musset Ave., N.D.G.

GEORGE JACOBSON, B.Sc. (Vienna)
Honorary Lecturer in Geography — *539 Pine Ave. W.*
3440 Ontario Ave.

F. CYRIL JAMES, Chevalier de la Légion d'Honneur, B.Com. (Lond.), M.A., Ph.D. (Penn.), D.Sc. (Laval, etc.), D. de l'U. (Montréal), D.C.L. (Bishop's), LL.D. (Toronto, Glasgow, etc.), F.R.S.C.
Principal and Vice-Chancellor of the University and Professor of Political Economy — *Dawson Hall*
1200 Pine Ave. W.

ROBERT EDWARDS JAMIESON, O.B.E., M.Sc., P.Eng.
Dean of the Faculty of Engineering, William Scott Professor of Civil Engineering, Chairman of the Department of Civil Engineering, and Director of the Engineering Building
Engineering Building
234 Metcalfe Ave., Westmount

ANNIE ELIZABETH JAQUES
Lecturer in the School for Teachers — *Macdonald College*

HERBERT HENRI JASPER, A.B. (Reed), M.A. (Oregon), Ph.D. (Iowa), D.-ès-Sc. (Paris), M.D., C.M.
Professor of Experimental Neurology, and Physician-in-charge of the Neurophysiology and the Electroencephalography Laboratories
Montreal Neurological Institute
804 Upper Lansdowne Ave.

MARJORIE MCMILLEN JENKINS, B.Sc. (H.Ec.) (Alta.), M.Sc.
Assistant Professor in the School of Household Science — *Macdonald College*

ARNOLD LIVINGSTONE JOHNSON, M.D., C.M., M.Sc.
Assistant Professor of Paediatrics and Lecturer in Physiology
Montreal Children's Hospital

LOUIS G. JOHNSON, B.Sc., M.D., C.M., F.R.C.P. (C.)
Assistant Professor of Medicine — *Royal Victoria Hospital*

W. AUSTIN JOHNSON, B.A., B.C.L.
Lecturer in Architecture — 507 Place d'Armes

KENNETH BURNS JOHNSTON, M.M., M.D., C.M., D.O.M.S. (E.), F.R.C.S. (C.)
Professor of Ophthalmology and Chairman of the Department
Royal Victoria Hospital
1509 Sherbrooke St. W.

WILBUR AUSTIN JOHNSTON
Supervisor of Athletics Facilities — *Currie Gymnasium*
3425 Ridgewood Ave.

WILFRED JAMES JOHNSTON, D.D.S.
Assistant Professor of Dentistry — Suite 1102, 1414 Drummond St.

WILLIAM JOHNSTON, B.C.L.
Lecturer in Law — *Chancellor Day Hall*
345 - 43rd Ave., Lachine

JOAN ELAINE JOHNSTONE, B.Sc.(Phys.Ed.)
Lecturer in the School for Teachers — *Macdonald College*

GEORGE WILFRED JOLY, B.A. (Loyola), M.Eng.
Assistant Professor of Civil Engineering — *Engineering Building*
5675 Bannantyne Ave., Verdun

ARCHIBALD R. C. JONES, B.Sc. (Tor.)
Lecturer in Wood Lot Management — *Macdonald College*

ARNOLD JONES, B.Sc. (U.N.B.), M.D., C.M., F.R.C.S. (C.)
Demonstrator in Surgery — *Montreal General Hospital*
17 Willow Ave.

EVAN H. JONES, D.D.S.
Demonstrator in Dentistry — 411 Queen St., Ottawa

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GUY JORON, B.A. (Loyola), M.D., C.M.
Demonstrator in Medicine — *Montreal General Hospital*, 1414 Drummond St.

WINTHROP OTIS JUDKINS, A.M., Ph.D. (Harvard)
Associate Professor of Fine Arts and Chairman of the Department — *Arts Building*, 40 Hillcrest Ave., Pointe Claire

DAVID S. KAHN, B.A. (Sask.), M.D. (Tor.)
Sessional Lecturer in Pathology — *Pathological Institute*

FREDERICK KALZ, M.D. (Prague)
Assistant Professor of Medicine — *Royal Victoria Hospital*, 1414 Drummond St.

GERTRUDE G. KALZ (MRS. F.), M.D., D.P.H. (Prague)
Associate Professor of Bacteriology and Immunology — *Pathological Institute*, 3766 Marlowe Ave.

GORDON MACCORQUODALE KARN, B.Sc., M.D., C.M., M.Sc., Dipl. Surg., F.R.C.S.
Demonstrator in Surgery — 4380 Harvard Ave.

SHELBY KASHKET, B.Sc.
Research Associate and Assistant Demonstrator in Biochemistry — *Biological Building*, 4831 St. Urbain St.

HYMAN KAUFMAN, M.Sc., Ph.D.
Associate Professor of Mathematics — *3425 University St.*, 4847 Grand Blvd.

CLIFFORD D. KELLY, M.S.A. (U.B.C.), Ph.D. (Cornell)
Assistant Professor of Bacteriology and Immunology — *Pathological Institute*, 30 Wicksteed Ave., Town of Mount Royal

JEROME JOSEPH KELLY, B.A. (St.F.X.), M.D., C.M.
Lecturer in Anaesthesia — *Montreal General Hospital*

MURRAY C. KEMP, B.Com., M.A. (Melbourne)
Associate Professor of Economics — *Purvis Hall*, Wilson Hall

W. ROLAND KENNEDY, B.Sc., M.D., C.M.
Assistant Professor of Medicine — *Montreal General Hospital*, 1538 Sherbrooke St. W.

LEONARD E. KENT, JR., B.Sc., D.D.S.
Demonstrator in Dentistry — *Medical Building*, 760 - 44th Ave., Lachine

DONALD KEPRON, M.S.D. (Michigan), D.D.S.
Assistant Professor of Dentistry — *Donner Building*, 3609 University St.

ILONA KERNER, M.D. (Budapest)
Demonstrator in Pathology — *Pathological Institute*, Apt. 2, 397 St. Joseph Blvd. W.

JOHN KERR, B.A.
Honorary Lecturer in Religious Instruction — *Macdonald College*

ERIC WILLIAM KIERANS, B.A. (Loyola)
Director of the School of Commerce, Professor of Commerce, and Director of Purvis Hall and of Duggan House — *Purvis Hall*, 5631 Queen Mary Rd.

HAMILTON DE LISLE KING, Ph.D. (Lond.), M.Sc.
Research Associate in Agricultural Bacteriology — *Macdonald College*

ALEXANDER MANSON KINGHORN, Ph.D. (Aberdeen)
Lecturer in English — *Arts Building*, Apt. 3, 3550 Lorne Ave.

DONALD M. KINGSBURY, B.Sc.
Lecturer in Mathematics — *3425 University St.*, 2108 Maplewood Ave.

WALTER KARL KINTZEN, M.D. (Berne)
Teaching Fellow in Pathology — *Pathological Institute*, Apt. 8, 4470 Dupuis Ave.

H. DAVID KIRK, B.S. (N.Y.), M.A., Ph.D. (Cornell)
Associate Professor in the School of Social Work — *3600 University St.*, 54 - 6th Ave., Laval West

JOHN S. KIRKALDY, M.A.Sc. (U.B.C.), Ph.D.
Assistant Professor of Metallurgical Engineering — *Physical Sciences Centre*, Macdonald College

JOHN G. KIRKPATRICK, B.Sc., B.C.L.
Lecturer in Law — *Chancellor Day Hall*, 634 Victoria Ave., Westmount

LEO S. S. KIRSCHBERG, M.D., C.M.
Lecturer in Ophthalmology — *Royal Victoria Hospital*, Suite 25, 1390 Sherbrooke St. W.

VICTOR KLEIDER, M.D. (Vienna), L.M.C.C.
Demonstrator in Neurology and Neurosurgery — 4177 Wilson Ave.

DAVID KLEIN, M.D., C.M., D.P.H.
Demonstrator in Paediatrics — *Montreal Children's Hospital*, Apt. 2, 5480 Lemieux Ave.

RAYMOND KLIBANSKY, M.A. (Oxon.), D.Phil. (Heidelberg)
Professor of Philosophy — *Duggan House*, 3450 McTavish St.

SLAVA KLIMA, M.A., Ph.D. (Yale)
Lecturer in English — *Arts Building*, 1531 Bishop St.

HAROLD R. KLINCK, B.S.A. (Ont. Agr. Coll.), M.Sc.
Assistant Professor of Agronomy — *Macdonald College*

E. CLIFFORD KNOWLES, B.D. (Tor.), M.A.
University Chaplain and Student Counsellor, and Sessional Lecturer in Public Speaking in the Faculty of Engineering — *Arts Building*, 5221 Westmore Ave., N.D.G.

WADAW KOZAKIEWICZ, M.A., Ph.D. (Warsaw)
Associate Professor of Mathematics — *3425 University St.*, Main Rd., Hudson Heights

McGILL UNIVERSITY LIBRARY

VOJTECH ADALBERT KRAL, M.D. (Prague)
Assistant Professor of Psychiatry and Director of the Gerontological Laboratory at the Allan Memorial Institute — *Verdun Protestant Hospital*
4145 Blueridge Crescent

ERNST HAKAN KRANCK, D.Sc. (Helsingfors)
Professor of Geological Sciences — *Physical Sciences Centre*
Hudson Heights

HENRY KRAVITZ, B.A., M.D., C.M.
Demonstrator in Psychiatry — *Allan Memorial Institute*
5050 Clanranald Ave.

KAILASH KUMAR, B.Sc. (Agra), M.Sc. (Allahabad), Ph.D. (McMaster)
Special Lecturer in Mathematics — *Physical Sciences Centre*
Apt. 4, 1525 Mackay St.

RAYMOND LACHAPELLE, B.A. (Montréal), B.C.L.
Lecturer in Law — *Chancellor Day Hall*
4553 Delorimier Ave.

WILLIAM ARTHUR RICHARD LAING, B.A., M.D., C.M.
Demonstrator in Medicine — *Montreal General Hospital*

ROLAND THOMAS LAMB, B.Sc., D.D.S.
Assistant Professor of Dentistry — Suite 1122, 1414 Drummond St.

JOACHIM LAMBEK, M.Sc., Ph.D.
Associate Professor of Mathematics — *3425 University St.*
49 Macaulay Ave., St. Lambert

WALLACE E. LAMBERT, B.A. (Brown), M.A. (Colgate), Ph.D. (North Carolina)
Assistant Professor of Psychology — *Donner Building*
Apt. 4, 4990 Walkley Ave.

MANUEL PHILLIP LANGLEBEN, M.Sc., Ph.D.
Research Associate in Physics — *Physics Building*
8180 Wiseman Ave.

ALBERT W. LAPIN, B.A., M.D., C.M., M.R.C.P. (Lond.), F.R.C.P. (C.)
Demonstrator in Medicine — *Montreal General Hospital*
4119 Sherbrooke St. W.

MARC LAPOINTE, B.A. (Montreal), M.C.L.
Lecturer in Law — *Chancellor Day Hall*
10252 Waverley St.

HÉLÈNE LARIVIÈRE (MRS. P. L.), Agrégée de l'Université de France
Associate Professor of Romance Languages — *Arts Building*
1532 Pine Ave. W.

ERIC WILLIAM LARKING, M.D., C.M., R.C.P.S. (C.)
Demonstrator in Anaesthesia — *Royal Victoria Hospital*
161 Monterrey Ave., Lakeside Heights

JEAN PAUL A. LATOUR, B.Sc., M.D., C.M.
Assistant Professor of Obstetrics and Gynaecology — *Royal Victoria Hospital*
4820 Western Ave., Westmount

JEAN E. L. LAUNAY, Licencié-ès-Lettres, Diplômé d'Études Supérieures (Paris), Agrégé de l'Université de France
Professor of French Language and Literature and Chairman of the Department of Romance Languages — *Arts Building*, 4003 Oxford Ave.

H. WYATT LAWS, M.D., C.M.
Demonstrator in Ophthalmology — *Montreal General Hospital*, 1509 Sherbrooke St. W.

RAY NEWTON LAWSON, B.A., M.D. (Western Ont.), F.R.C.S.
Demonstrator in Surgery — *Royal Victoria Hospital*, 1509 Sherbrooke St. W

DONALD LAYNE, B.Sc.(Agr.)
Demonstrator in Agricultural Chemistry — *Macdonald College*

JEAN EUGENE LEBEL, M.A. (Tor.), B.Sc.
Lecturer in Mathematics — *3425 University St.*, Apt. 5, 5190 - 2nd Ave., Rosemount

CHARLES PHILIPPE LEBLOND, M.D. (Paris), Ph.D. (Montréal), D.Sc. (Sorbonne)
Professor of Anatomy — *Medical Building*, 68 Chesterfield Ave., Westmount

GERALD ERIC LE DAIN, D. de l'U. (Lyon), B.C.L.
Associate Professor of Law — *Chancellor Day Hall*, 3229 Maplewood Ave.

RODNEY ALEXANDER LEFEBVRE, D.D.S.
Demonstrator in Dentistry — 1224 St. Catherine St. W.

HEINZ EDGAR LEHMANN, M.D. (Berlin)
Assistant Professor of Psychiatry — *Verdun Protestant Hospital*, 6603 Lasalle Blvd., Verdun

WILFRED LEITH, B.A. (Mount Allison), M.D., C.M. (Dal.)
Demonstrator in Meaicine and Physician at the University Health Service — 4119 Sherbrooke St. W.

CHARLES STUART LEMESURIER, Q.C., B.A., B.C.L., LL.D. (Glasgow)
Professor of Law (Post-retirement) — *Chancellor Day Hall*, 129 Arlington Ave., Westmount

RIA LENSSENS (MRS. ALBERT HEYNINX)
Instructor in Singing — *Conservatorium of Music*, Apt. 9, 3850 Cote St. Catherine Rd.

MARC LEROUX, B.A., B.C.L. (Montreal)
Lecturer in Law — *Chancellor Day Hall*, 378 Carlyle Ave., Town of Mount Royal

DOUGLAS CLIFTON LEVIN, M.B.B.S. (Lond.)
Demonstrator in Psychiatry — *Montreal General Hospital*, 1509 Sherbrooke St. W.

SEYMOUR LEVINE, M.Eng.
Assistant Professor of Mechanical Engineering — *Engineering Building*, 4995 Hingston Ave.

BENJAMIN ABRAHAM LEVITAN, B.Sc., M.D., C.M.
Demonstrator in Medicine — *Royal Victoria Hospital*, 1462 Bishop St.

McGILL UNIVERSITY LIBRARY

JACOB B. LIGHTMAN, LL.B. (George Washington), M.S.S. (New York)
Associate Professor in School of Social Work — *3600 University St.*, 4902 Victoria Ave.

ROBERT J. LINDSAY, B.Eng.
Lecturer in Civil Engineering — *Engineering Building*, 3542 Connaught Ave.

EDWARD MILTON LITTLE, M.Sc. (Washington), Ph.D. (Illinois)
Research Associate in Physics — *Physics Building*, Apt. 6, 3400 Ridgewood Ave.

GEORGE D. LITTLE, M.D., C.M., F.A.C.S.
Lecturer in Surgery — 1538 Sherbrooke St. W.

LEWIS LLOYD, M.Sc., Ph.D.
Associate Professor of Nutrition — *Macdonald College*

DONALD LAVELL LLOYD-SMITH, M.D., C.M., F.R.C.P.
Assistant Professor of Neurology and Neurosurgery and Librarian at the Montreal Neurological Institute — *Montreal Neurological Institute*, 4530 Wilson Ave.

JOHN CRAIG LOCKE, B.Sc., M.D., C.M., Cert. Ophthal. (R.C.P. & S.), Dip. (Amer. Board Ophthal.)
Professor of Ophthalmology — 1414 Drummond St.

EMILE A. LODS, D.-ès-Sc. (Montréal), M.S.A., F.A.I.C.
Superintendent of Provincial Seed Farm (Post-retirement) — *Macdonald College*

ELIZABETH LOGAN, B.Sc. (Acadia), Master of Nursing (Yale)
Assistant Professor in the School for Graduate Nurses — *Beatty Hall*, Apt. 1, 3495 Peel St.

RICHARD CULVER LONG, B.Sc., M.D., C.M.
Demonstrator in Surgery — *Royal Victoria Hospital*, 3448 Peel St.

MARVIN N. LOUGHEED, M.D., C.M., F.R.C.P. and S.
Demonstrator in Radiology — *Montreal General Hospital*

HERBERT RONALD LOUTTIT, D.D.S.
Demonstrator in Dentistry — 4470 Sherbrooke St. W.

LOUIS LOWENSTEIN, B.A., M.D. (Vanderbilt), F.A.C.P.
Assistant Professor of Medicine — *Royal Victoria Hospital*, 2162 Sherbrooke St. W.

GORDON READMAN LOWTHER, M.A. (Cantab.)
Acting Curator of McCord Museum — *3507 Drummond St.*, Apt. 10, 1431 Mackay St.

GEORGE LUBINSKY, M.B.Bc., M.D. (Kiev), Ph.D.
Research Associate in Parasitology — *Macdonald College*

JOSEPHUS CORBUS LUKE, M.B.E., B.A., M.D., C.M., F.R.C.S. (Eng. and C.)
Assistant Professor of Surgery — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

GIAN FLORENCE LYMAN
Instructor in Music — *Conservatorium of Music*, 486 Lansdowne Ave., Westmount

JOHN GOODWIN LYMAN, F.R.S.A.
Associate Professor of Fine Arts (Post-retirement) — *3450 Drummond St.* Apt. 77, 1509 Sherbrooke St. W.

JAMES LORNE MACARTHUR, M.D. (Western Ont.), M.R.C.O.G., F.A.C.S., F.R.C.S. (C.)
Lecturer in Obstetrics and Gynaecology — *Montreal General Hospital* 1414 Drummond St.

WILLIAM NORSEWORTHY MCBAIN, B.Com. (Alta.), M.A. (U.B.C.), Ph.D. (California)
Assistant Professor of Psychology — *Peterson Hall* 324 Monmouth Ave., Town of Mount Royal

MARY FRANCES MCCALL, M.D., C.M.
Demonstrator in Paediatrics — 2777 Hill Park Circle

RONALD STORR MCCALL, B.Phil (Oxon.), B.A.
Sectional Lecturer in Philosophy — *Arts Building* 2777 Hill Park Circle

EVAN ALEXANDER MACCALLUM, M.D.,C.M., F.R.C.S.(C.)
Demonstrator in Obstetrics and Gynaecology — *Montreal General Hospital*

JAMES LESTER MCCALLUM, B.A., M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine — *Montreal General Hospital* 1610 Pine Ave. W.

JOHN JOSEPH MCCARTHY, B.Sc. (St. F. X.), D.D.S.
Lecturer in Dentistry — 1414 Drummond St.

KATHLEEN STARR MCCORMICK, B.A. (Tor.)
Lecturer in the School of Household Science — *Macdonald College*

JAMES ROLAND MCCORRISTON, B.A. (Sask.), M.D., C.M. (Queen's), M.Sc., F.R.C.S. (C.)
Lecturer in Surgery — *Donner Building* Apt. 44, 3300 Ridgewood Ave.

DONALD ROSS MCCRIMMON, M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital* 1538 Sherbrooke St. W.

PAUL FLETCHER MCCULLAGH, B.A. (Tor.), Ph.D. (Chicago), M.A.
Associate Professor of Classics and Chairman of the Department — *Arts Building* 3562 University St.

JAMES MCCUTCHEON, M.S.D. (Michigan), B.A., D.D.S.
Dean of the Faculty of Dentistry and Associate Professor of Dentistry — *Donner Building* 25 Madsen Ave., Beaurepaire

JOHN OLIVER MCCUTCHEON, M.Eng.
Assistant Professor of Civil Engineering — *Engineering Building* 516 Grosvenor Ave., Westmount

PEMBROKE NOEL MACDERMOTT, M.D., C.M
Assistant Professor of Paediatrics — *Montreal Children's Hospital* 1414 Drummond St.

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DONALD WILSON MCDONALD, B.A. (Dal.), M.D., C.M.
Lecturer in Ophthalmology — *Montreal General Hospital*
1538 Sherbrooke St. W.

HUGH NEIL A. MACDONALD, M.D., C.M. (Dalhousie)
M.N.I. Teaching Fellow — *Montreal Neurological Institute*

SAMUEL ARTHUR MACDONALD, B.A., M.B., Ch.B. (Edin.), F.I.C.S., F.R.C.S. (C.)
Lecturer in Surgery — *Montreal General Hospital*
1414 Drummond St.

COLIN MALCOLM MCDOUGALL, D.S.O., B.A.
Assistant Registrar — *Dawson Hall*
433 Lansdowne Ave.

JAMES URQUHART MACEWAN, B.Sc. (Queen's), M.S. (Montana School of Mines)
Birks Professor of Metallurgy, Chairman of the Department and Deputy Director of the Physical Sciences Building — *Physical Sciences Centre*
3534 University St.

DAVID L. MACFARLANE, B.S.A., M.Sc. (Sask.), Ph.D. (Minnesota)
Professor of Agricultural Economics and Chairman of the Department — *Macdonald College*

JOHN ELWOOD MCFARLANE, M.A. (Sask.)
Assistant Professor of Entomology — *Macdonald College*

KENNETH TURVILLE MACFARLANE, M.D. (Western Ont.), M.R.C.O.G., F.A.C.S.
Assistant Professor of Obstetrics and Gynaecology — *Montreal General Hospital*
1374 Sherbrooke St. W.

ELEANOR E. MCGARRY, B.Sc., M.D., C.M.
Lecturer in Medicine and Clinical Medicine — *University Clinic, R.V.H.*
4022 Gray Ave.

PATRICIA GRAHAM MCGOUN, Diploma in Physiotherapy
Demonstrator in the School of Physical and Occupational Therapy — *Montreal Children's Hospital*
246 Redfern Ave.

HOLLIE EDWARD MCHUGH, B.Sc., M.D., C.M., D.L.O. (R.C.P. & S.)
Lecturer in Otolaryngology — *Royal Victoria Hospital*
3448 Peel St.

CLARENCE A. MCINTOSH, B.A., M.D., C.M.
Assistant Professor of Surgery — *Royal Victoria Hospital*
1390 Sherbrooke St. W.

DONALD JOSEPH MACINTOSH, B.A. (St.F.X.), M.D., C.M., Dipl. Int. Med., F.R.C.P. (C.)
Demonstrator in Medicine — *Montreal General Hospital*

FRANK C. MACINTOSH, M.A. (Dal.), Ph.D., F.R.S.
Joseph Morley Drake Professor of Physiology and Chairman of the Department — *Biological Building*
145 Wolseley Ave. N., Montreal West

JOHN FORBES MCINTOSH, B.A. (U.N.B.), M.D., C.M.
Associate Professor of Medicine — *Royal Victoria Hospital*, 19 Springfield Ave., Westmount

ALEXANDER RONALD MCKAY, B.Eng.
Lecturer in Mechanical Engineering — *Engineering Building*, 161 Appin Ave.

JOSEPH WILLIAM MCKAY, M.D., C.M. (Dal.), F.R.C.P. (C.)
Associate Professor of Radiology — *Montreal General Hospital*

RICHARD DONALD MCKENNA, B.A. (Montréal), M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

KENNETH READING MACKENZIE, B.A., M.D., C.M., Ph.D., L.R.C.P. (Lond.), M.R.C.S. (Eng.)
Assistant Professor of Medicine and Assistant Professor in the Medical Clinic — *Royal Victoria Hospital*, Apt. 301, 3425 Stanley St.

ALASTAIR THOMSON MCKINNON, M.A. (Tor.), Ph.D. (Edin.)
Assistant Professor of Philosophy — *Arts Building*, 4240 Grand Blvd.

KENNETH JOSEPH MACKINNON, B.Sc. (St. F.-X.), M.D., C.M. (Dal.)
Demonstrator in Surgery — 3448 Peel St.

HELEN GEORGINA MCKIRDY, B.Sc.(H.Ec.)
Lecturer in Household Science — *Macdonald College*

JOHN T. MCLEAN, M.D. (Man.)
Lecturer in Surgery — *Royal Victoria Hospital*, Suite 202, 1538 Sherbrooke St. W.

W. GILLIES MCLELLAN, B.A., M.D., C.M.
Honorary Lecturer in Medicine — *Royal Victoria Hospital*, 1538 Sherbrooke St. W.

HUGH MACLENNAN, B.A. (Dal.), M.A. (Oxon.), A.M., Ph.D. (Princeton), D.Litt. (Western Ont.).
Associate Professor of English — *Arts Building*, 1535 Summerhill Ave.

ALASTAIR WILLIAM MACLEOD, B.Sc., M.B., Ch.B., D.P.H. (Glasgow), Dip. Psych. Med., M.R.C.P. (Lond.)
Assistant Professor of Psychiatry and Lecturer in Health and Social Medicine — 531 Pine Ave. W.

HECTOR IVAN MCLEOD, D.D.S.
Demonstrator in Dentistry — *Donner Building*

ROGER EMMETT MCMAHON, D.D.S.
Assistant Professor of Dentistry — 1414 Drummond St.

CHARLES WILLIAM MACMILLAN, M.D., C.M. (Dal.), D.P.H. (Tor.)
Associate Professor of Health and Social Medicine — *490 Pine Ave. W.*, 359 Melville Ave., Westmount

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GARDNER C. MCMILLAN, M.D., C.M., M.Sc., Ph.D.
Miranda Fraser Associate Professor of Comparative Pathology
Pathological Institute
370 - 41st Ave., Lachine

WILLIAM JAMES MCNALLY, B.A., M.D., C.M. (Dal.), LL.D. (St.F.X.), M.Sc., D.Sc., F.R.C.S. (C.)
Professor of Otolaryngology and Chairman of the Department
Royal Victoria Hospital
1509 Sherbrooke St. W.

ERIC A. MCNAUGHTON, M.D., C.M., F.R.C.S. (C.)
Assistant Professor of Surgery *Montreal General Hospital*
Suite 316, 1414 Drummond St.

FRANCIS LOTHIAN MCNAUGHTON, B.A., M.D., C.M., M.Sc.
Associate Professor of Neurology and Assistant Director of the Montreal Neurological Institute *Montreal Neurological Institute*
618 Victoria Ave., Westmount

ANNA ISOBEL MCPHERSON, Ph.D. (Chicago), B.A., M.Sc.
Associate Professor of Physics *Physics Building*
24 Fenwick Ave., Montreal West

WILLIAM J. MCQUILLAN, B.A. (Loyola), B.C.L.
Lecturer in Law *Chancellor Day Hall*
2930 Kirkfield Ave.

MELVYN MCQUITTY, M.B. (Tor.)
Demonstrator in Medicine Ste. Anne's Hospital, Ste. Anne de Bellevue

DONALD LANE MCRAE, M.D. (Western Ont.)
Associate Professor of Radiology *Montreal Neurological Institute*

FRANK SUTHERLAND MACSHANE, B.A. (Harvard), M.A. (Yale)
Lecturer in English *Arts Building*
Apt. 1, 3511 Shuter St.

DAVID JOHN LOGAN MACWATT, M.B., Ch.B.
Demonstrator in Anaesthesia
7375 Maynard St.

EDWARD DAVID MACKEY
Supervisor of Staff Records *Dawson Hall*
341 Woodland Ave., Verdun

HELEN MAHUT, B.A. (Sir George Williams), M.A., Ph.D.
Lecturer in Psychology *Donner Building*
Apt. 17, 3456 Shuter St.

ALLAN CLYDE MALLOCH, B.Sc. (Queen's)
Assistant Professor of Agricultural Engineering *Macdonald College*

ARCHIBALD EDWARD MALLOCH, B.A. (Queen's), M.A. (Tor.)
Assistant Professor of English *Arts Building*
524 Lansdowne Ave., Westmount

JAMES RUSSELL MALLORY, B.A. (U.N.B.), M.A. (Dal.), LL.B. (Edin.)
Associate Professor of Economics and Political Science *Arts Building*
632 Grosvenor Ave.

CONNOLLY JAMES MALLOY, B.A. (Montréal), M.D., C.M., F.R.C.P. (C.)
Lecturer in Medicine
Royal Victoria Hospital
Suite 1, 1509 Sherbrooke St. W.

ROBERT B. MALMO, M.A. (Missouri), Ph.D. (Yale), F.A.P.A.
Associate Professor of Psychology in the Department of Psychiatry
Allan Memorial Institute
814 Graham Blvd., Town of Mount Royal

EDITH MARION MANKIEWICZ, M.Sc. (Leipzig), M.D. (Université de Lyon)
Lecturer in Bacteriology
Pathological Institute

ALAN MANN, M.D., C.M.
Demonstrator in Psychiatry
Montreal Children's Hospital
132 Thornton Ave., Town of Mount Royal

PAUL R. MARCHAND, D.D.S.
Assistant Professor of Dentistry
1538 Sherbrooke St. W.

D. M. MARCUS, M.D., C.M. (Queen's), F.R.C.P. (C.)
Demonstrator in Medicine and Clinical Medicine
Montreal General Hospital
5220 King Edward Ave.

DONALD MARSH, B.A. (U.N.B.), M.A. (Louisiana State), Ph.D. (Illinois)
Chairman of the Social Studies and Commerce Groups in the Faculty of Arts and Science, Bronfman Professor of Economics and Political Science, and Chairman of the Department
Purvis Hall
43 Beaconsfield Ave., Beaconsfield

ARTHUR RICHARD MARSHALL, B.Com. (Dal.)
Assistant Professor in the School of Commerce
Purvis Hall
Apt. 100, 3465 Ridgewood Ave.

J. STEWART MARSHALL, M.A. (Queen's), Ph.D. (Cantab.)
Professor of Physics and Assistant Director of the Observatory
Physics Building
3535 Carleton Rd.

CECIL P. MARTIN, M.A., M.B., Ch.B., Sc.D. (Dublin), M.R.I.A.
Robert Reford Professor of Anatomy and Chairman of the Department
Medical Building
3534 University St.

JOHN MARTIN, B.Sc., M.D., C.M., M.R.C.P. (Lond.), F.R.C.P. (C.)
Demonstrator in Medicine and in Clinical Medicine 1414 Drummond St.

S. JAMESON MARTIN, M.D., C.M., F.R.C.S. (Edin. and C.)
Associate Professor of Surgery and Assistant Professor of Oral Surgery
Montreal General Hospital
Suite 25, 1414 Drummond St.

WILLIAM MACPHAIL MARTIN, B.Sc. (Queen's), Ph.D.
Associate Professor of Physics
Physics Building
49 Brookhaven Ave., Dorval

STANLEY G. MASON, B.Eng., Ph.D.
Honorary Lecturer in Chemistry
443 Claremont Ave., Westmount

McGILL UNIVERSITY LIBRARY

ANNE MARIE MASSON, B.A. (Strasbourg), M.D. (Paris) (on leave of absence)
Assistant Professor of Bacteriology and Immunology
Pathological Institute
5597 Canterbury Ave.

WILLIAM H. MATHEWS, M.D., C.M.
Assistant Professor of Pathology *Montreal General Hospital*
270 Laird Blvd., Town of Mount Royal

JAMES FREDERICK MATHISON, B.A.
Research Associate in the Radiation Laboratory *Radiation Laboratory*
Apt. 10, 3255 Ridgewood Ave.

THOMAS H. MATTHEWS, M.A. (Oxon.), LL.D. (McMaster)
Registrar and Secretary of the Senate *Dawson Hall.*
3450 McTavish St.

GEORGE B. MAUGHAN, M.D., C.M., M.Sc., M.R.C.O.G., F.A.C.S.
Professor of Obstetrics and Gynaecology and Chairman of the Department
Royal Victoria Hospital
1414 Drummond St.

WILLIAM ALFRED MAW, M.S.A., F.P.S.
Professor of Poultry Husbandry and Chairman of the Department
Macdonald College

JOHN WILLIAM MEAGHER, B.A. (Loyola), B.Sc. (P.Ed.)
Assistant Professor of Physical Education *Currie Gymnasium*
3405 Trenholme Ave.

JONATHAN FAYETTE MEAKINS, M.A. (Cantab.), M.D., C.M., F.R.C.P. (C.), F.C.C.P.
Assistant Professor of Medicine *Royal Victoria Hospital*
Suite 25, 1390 Sherbrooke St. W.

KENNETH MEEK, Mus. B. (Tor.), L.Mus.
Instructor in Music *Conservatorium of Music*
1104 Elgin Terrace

EUGENE MEEROVITCH, B.Sc. (St. John's, Shanghai)
Lecturer in Parasitology *Macdonald College*

SAMUEL MELAMED, B.Sc.
Assistant Professor of Mathematics *3425 University St.*
4868 Melrose Ave.

M. DOROTHEA MELLOR, B.Sc., M.D., C.M.
Physician in the Student Health Service *Royal Victoria College*
619 Belmont Ave.

KENNETH IVAN MELVILLE, M.D., C.M., M.Sc.
Professor of Pharmacology and Chairman of the Department
Biological Building
4937 Circle Rd.

S. LEON MENDELSOHN, B.C.L.
Lecturer in Law
Chancellor Day Hall
10 Renfrew Ave.

JOHN HAMILTON MENNIE, B.Sc. (Oxon.), M.A. (U.B.C.), Ph.D.
Associate Professor of Chemistry *Chemistry Building*
31 Holton Ave., Westmount

WILLIAM CAMPBELL JAMES MEREDITH, Q.C., M.A. (Cantab.)
Dean of the Faculty of Law, Macdonald Professor of Law, and Building Director of Chancellor Day Hall
Chancellor Day Hall
Apt. 2, 2151 Lincoln Ave.

LEO MERGLER, M.D., C.M.
Demonstrator in Psychiatry
Allan Memorial Institute
19 Ellerdale Rd., Hampstead

RUSSELL ROY MERIFIELD, B.A., B.C.L., A.C.I.S.
Lecturer in Law
Chancellor Day Hall
57 Palmerston Ave., Town of Mount Royal

GORDON CLARK MERRILL, M.A.
Assistant Professor of Geography and Special Assistant to the Chairman
539 Pine Ave. W.
Apt. 9, 5520 Victoria Ave.

JULIUS DEMETRIUS METRAKOS, M.Sc., Ph.D.
Assistant Professor of Genetics
Biological Building
Apt. 2, 4010 Cote St. Catherine Rd.

BERTHA MEYER, M.A.
Assistant Professor of German
Arts Building
Apt. 206, 3445 Ridgewood Ave.

ERIC P. MILLAR. D.D.S.
Demonstrator in Dentistry
Montreal General Hospital

JEAN L. MILLAR
Instructor in Singing
Conservatorium of Music
25 Union Boulevard, St. Lambert

RONALD ALEXANDER MILLAR, M.B., Ch.B. (Edin.), F.F.A.R.C.S.
Demonstrator in Anaesthesia
Montreal Neurological Institute
4204 Van Horne Ave.

ALEXANDER MILLER, M.D., C.M., Dipl. Int. Med., F.R.C.P.
Demonstrator in Medicine and in Clinical Medicine
Montreal General Hospital

JAMES WILKINSON MILLER, A.B. (Mich.), Ph.D. (Harvard)
Macdonald Professor of Philosophy
Arts Building
3445 Stanley St.

EDWARD SADLER MILLS, M.D., C.M., M.Sc., F.R.C.P. (C.), F.A.C.P.
Professor of Medicine and Director of the University Clinic
Montreal General Hospital
Montreal General Hospital

IAN GEORGE MILNE, M.D., C.M., L.M.C.C.
Lecturer in Medicine and Clinical Medicine
1410 St. Clare Rd., Town of Mount Royal

BRENDA MILNER, M.A. (Cantab.), Ph.D.
Lecturer and Psychologist in Neurology and Neurosurgery
Montreal Neurological Institute
3654 Oxenden Ave.

PETER MARSHALL MILNER, B.Sc. (Leeds), M.Sc., Ph.D.
Assistant Professor of Psychology
Donner Building
Apt. 11, 3654 Oxenden Ave.

McGILL UNIVERSITY LIBRARY

ARNOLD W. MITCHELL, D.D.S.
Lecturer in Dentistry
1414 Drummond St.

DONALD S. MITCHELL, B.Sc., M.D. (Northwestern)
Lecturer in Medicine
Montreal General Hospital
1414 Drummond St.

HOWARD SCOTT MITCHELL, B.A., M.D. (Queen's), F.A.C.P.
Associate Professor of Medicine
Montreal General Hospital
Suite 716, 1414 Drummond St.

ROGER VICTOR MIZRAHI, Dip.E.E. (Swiss Fed. Inst. Tech.)
Demonstrator in Electrical Engineering
Engineering Building
3479 Shuter St.

MILOS MLADENOVIC, B.Com., M.L. (Belgrade), Docteur en Droit, ès Sciences Économiques, et ès Sciences Politiques, Dipl. des Hautes Études Soc. (Paris)
Assistant Professor of History
Arts Building
213 Westwood Ave., Dorval

ALBERT EDWARD MOLL, B.C.L., M.D., C.M.
Associate Professor of Psychiatry
1414 Drummond St.

AL MOLLOY
Instructor in Athletics
Currie Gymnasium
3406 Northcliffe Ave.

CLAUDE AUGUSTUS MOORE, M.D. (Western Ont.), F.R.C.S. (C.)
Demonstrator in Surgery
Montreal General Hospital
1486 Crescent St.

GEORGE A. MOORE, M.Sc. (Hon.)
Curator of Entomology
Redpath Museum
359 Querbes Ave.

JOHN JAMES OLIVER MOORE, A.B. (Missouri), M.A. (Denver), Ed.D. (Columbia)
Professor of Social Work and Director of the School of Social Work
3600 University St.
3280 Ridgewood Ave.

SEAN MOORE, B.A.O., B.Ch., M.D. (Belfast)
Lecturer in Pathology
Pathological Institute
1116 Elgin Terrace

DONALD LOUIS MORDELL, M.A. (Cantab.), A.M.I.M.E., A.F.R.Ae.S., M.E.I.C., Mem. A.S.M.E.
Thomas Workman Professor of Mechanical Engineering, Chairman of the Department, and Director of the Gas Dynamics Laboratory
Engineering Building
38 Lakeshore Rd., Beaconsfield

GUSTAV MORF, M.D. (Bern), Dr.-ès-Lettres (Neuchatel)
Lecturer in Psychiatry
Allan Memorial Institute
1410 Fayolle Ave., Verdun

ODOSCA MORGANTI, M.D. (Italy), M.Sc.
Lecturer in Bacteriology
Pathological Institute
Alexandra Hospital

ROBERT ORRIS MORGEN, B.A. (Miami Univ. of Ohio), M.D. (Western Reserve University, Cleveland)
Demonstrator in Medicine and Clinical Medicine
486 Lazard Ave., Town of Mount Royal

THEODORE FRANKLIN MORRIS, M.A., Ph.D. (Tor.)
Associate Professor of Mathematics — *Physical Sciences Centre*
114 Dobie Ave., Town of Mount Royal

FRANK ORVILLE MORRISON, B.A., M.Sc. in Agr. (Alta.), Ph.D.
Associate Professor of Entomology — *Macdonald College*

HARRY MORRISON, B.A. (Bishop's)
Lecturer in the Institute of Education — *Macdonald College*
21 Mountain St., Chateauguay Heights, Que.

ROBERT GEORGE KERR MORRISON, B.A.Sc. (Tor.), M.I.M.M., P.Eng. (Aus.)
Macdonald Professor of Mining Engineering and Chairman of the Department — *Physical Sciences Centre*
6195 Notre Dame de Grace Ave.

DOROTHY MORTON (MRS. A.)
Instructor in Music — *Conservatorium of Music*
7750 Birnam Ave., Park Extension

ELIZABETH SCHWOB MORTON (MRS. JAMES), A.Mus.
Instructor in Pianoforte and in Theoretical Subjects — *Conservatorium of Music*
Apt. 30, 148 Cote St. Antoine Rd.

HARRY STAFFORD MORTON, O.B.E., B.A., M.Sc. (Dal.), M.B. (Lond.), M.R.C.O.G., F.R.C.S. (Eng. and C.), F.A.C.S.
Assistant Professor of Surgery — *Royal Victoria Hospital*
900 Sherbrooke St. W.

HERBERT FREDERICK MOSELEY, M.A., D.M., M.Ch. (Oxon.), B.A., F.R.C.S. (Eng. and C.), F.A.C.S.
Assistant Professor of Surgery — *Royal Victoria Hospital*
1414 Drummond St.

JOHN ELLIS MOXLEY, B.Sc. (Agr.)
Assistant Professor of Animal Husbandry — *Macdonald College*

WALTER A. MUELLER, Ph.D. (Heidelberg)
Research Associate in Chemistry — *Chemistry Building*
12 Mimosa Ave., Dorval

DAVID MUHLSTOCK, D.D.S.
Demonstrator in Dentistry — 5064 Park Ave.

ANDREW NORMAN MUNGALL, B.A. (U.N.B.), M.D., C.M.
Demonstrator in Anaesthesia — Apt. 11, 6420 Sherbrooke St. W.

DAVID JOHN MUNRO, D.D.S.
Demonstrator in Dentistry — 4750 Dupuis Ave.

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S. IVEAGH MUNRO, B.Sc., M.A. (Columbia), Dip. M.S.P.E.
Associate Professor and Director for Women in the Department of Athletics, Physical Education, and Recreation — *Royal Victoria College*
Apt. 201, 1535 Summerhill Ave.

DAVID CLIMIE MUNROE, M.A.
Director of the School for Teachers and of the Institute of Education, Professor of Education — *Macdonald College and Arts Building*

DAVID ROSS MURPHY, B.Sc., M.D., C.M., F.R.C.S. (C.)
Associate Professor of Surgery — *Royal Victoria Hospital*
4960 Ponsard Ave.

SEAN B. MURPHY, S.B., M.D., C.M.
Demonstrator in Ophthalmology — 578 Claremont Ave.

HAROLD ROBERTS MURRAY, B.S.A. (Tor.), M.Sc. (Cornell)
Associate Professor of Horticulture and Chairman of the Department — *Macdonald College*

VIRGINIA E. MURRAY, M.A. (Columbia), B.L.S
Assistant Professor of Library Science — *Redpath Library*
4323 Western Ave.

H. LINDSAY MUSSELLS, D.D.S.
Demonstrator in Dentistry — 4460 Sherbrooke St. W.

JOSEPH RONALD NADEAU, D.D.S.
Demonstrator in Dentistry — Ste. Adele en Bas

JAMES NAIMAN, B.A., M.D., C.M.
Demonstrator in Psychiatry — *Allan Memorial Institute*
2090 Sherbrooke St. W.

TADEPALLI V. NARAYANA, M.A. (Madras), Ph.D. (N.Car.)
Assistant Professor of Mathematics — *3425 University St.*
2031 Stanley St.

CANON R. KENNETH NAYLOR, L.Th. (Diocesan Theol. Coll., Mtl.), B.A.
Lecturer in Divinity — *Divinity Hall*
3461 Northcliffe Ave.

HELENA C. M. NEIJZEN
Sessional Instructor in Handicrafts — *Macdonald College*

HELEN RIDOUT NEILSON, M.B.E., B.H.S., M.Sc. (on leave of absence)
Director of the School of Household Science, and Professor of Home Economics — *Macdonald College*

STANLEY ALEXANDER NEILSON, B.Sc.
Assistant Professor of Civil Engineering — *Engineering Building*
52 Arlington Ave., Westmount

DOROTHY A. NICHOL, B.Sc. (P.Ed.)
Lecturer in the School for Teachers — *Macdonald College*
17 Dobie Ave., Town of Mount Royal

JOHN VAN VLIET NICHOLLS, B.A., M.D., C.M., M.Sc., F.A.A.O.O.
Assistant Professor of Ophthalmology — *Royal Victoria Hospital*
Suite 207, 1414 Drummond St.

ROBERT VAN VLIET NICHOLLS, M.Sc., Ph.D., F.C.I.C., F.C.S.
Associate Professor of Chemistry — *Chemistry Building*, 502 Elm Ave., Westmount

GRANVILLE H. NICKERSON, B.A. (Acadia), M.D., C.M., Dipl. Paed.
Demonstrator in Paediatrics — *Alexandra Hospital*

LEONIDAS GEORGE NICOLOPOULOS, B.A. (Cantab.),
Lecturer in Economics and Political Science — *Purvis Hall*, Apt. 49, 3201 Forest Hill Ave.

NIKOLAI NIKOLAICZUK, M.Sc. (Alta.), Ph.D. (Ohio State)
Associate Professor of Poultry Husbandry — *Macdonald College*

MARGARET E. NIX, B.A. (Man.), M.P.H., Ph.D. (Michigan)
Assistant Professor of Health and Social Medicine — *490 Pine Ave. W.*, Apt. 215, 3787 Cote des Neiges Rd.

ALAN B. NOBLE, M.D. (Tor.), R.C.P.S. (C.), F.A.C.A.
Assistant Professor of Anaesthesia — *Royal Victoria Hospital*

JOHN A. NOLAN, Q.C., B.A., B.C.L.
Lecturer in Law — *Chancellor Day Hall*, 660 Robertson St., Ville St. Laurent

MYRON NOTKIN, M.D., C.M.
Demonstrator in Medicine — *Medical Building*, 1538 Sherbrooke St. W.

ZOLTAN BENEDEK NYESTE, D.D.S.
Demonstrator in Dentistry — 5215 Victoria Ave.

JOHN L. O'BRIEN, Q.C., B.A., B.C.L.
Professor of Law — *Chancellor Day Hall*, 507 Place d'Armes

ELLENOR OLAND
Demonstrator in the School of Physical and Occupational Therapy — *Beatty Hall*, 4697A Lacombe Ave.

NORMAN OLER, M.Sc.
Lecturer in Mathematics — *3425 University St.*, 6460 McLynn Ave.

W. FRASER OLIVER, B.A. (McMaster), M.A., Ph.D. (Tor.)
Associate Professor of Agricultural Physics — *Macdonald College*

ORVIL A. OLSEN, B.S.A. (Sask.), M.Sc. (Man.)
Assistant Professor of Plant Pathology — *Macdonald College*

JAMES HENRY O'NEILL, B.Sc. (St. F. X.), M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital*, Apt. 16, 1509 Sherbrooke St. W.

MARIO ONYSZCHUK, M.Sc. (Western Ontario), B.Sc., Ph.D.
Lecturer in Chemistry — *Chemistry Building*, 6242 Louis Hebert St.

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SVENN ORVIG, B.Sc. (Oslo), Ph.D.
Honorary Lecturer in Geography and Research Associate in the Arctic Meteorology Research Group 420 Metcalfe Ave., Westmount

PETER EARL O'SHAUGHNESSY, M.D., C.M.
Lecturer in Anaesthesia *St. Mary's Hospital*

PAUL OTTOLENGHI, B.Sc.
Research Associate in Biochemistry *Biological Building*
Apt. 37, 456 Pine Ave. W.

HERBERT FRANK OWEN, B.A., M.D., C.M., Dipl. Surg.
Demonstrator in Surgery *Montreal Children's Hospital*
Suite 611, 1538 Sherbrooke St. W.

HARRY OXORN, M.D., C.M. (Dal.), B.A., Dipl. Obstet., F.R.C.S. (C.)
Demonstrator in Obstetrics and Gynaecology 3465 Cote des Neiges Rd.

ANDREJS PAKALNINS, Dipl. Eng. (Charlottenburg), D.Sc. (Latvia)
Associate Professor of Civil Engineering *Engineering Building*
Apt. 7, 1525 St. Mark St.

IRMGARD L. PAKALNINS (MRS. A.), Dipl. in Physio.
Demonstrator in the School of Physical and Occupational Therapy
Montreal General Hospital
Apt. 7, 1525 St. Mark St.

JOHN DICKINSON PALMER, B.A. (U.N.B.), M.D., C.M.
Lecturer in Surgery *Montreal General Hospital*
1414 Drummond St.

JOHN HAMMOND PALMER, M.D., C.M., F.A.C.P., F.R.C.P. (Lond. and C.)
Associate Professor of Medicine *Royal Victoria Hospital*
2162 Sherbrooke St. W.

HANNA PAPPIUS, M.Sc., Ph.D.
Lecturer and Associate Neurochemist in Neurology and Neurosurgery
Montreal Neurological Institute
4680 Grosvenor Ave.

JULES PETER ARTHUR PARÉ, B.Sc., M.D., C.M.
Demonstrator in Medicine 3448 Peel St.

HAZEL PARRY, B.A.
Demonstrator in the School of Physical and Occupational Therapy
Montreal General Hospital
1108 Elgin Terrace

CHAUNCEY JOHNSON PATTEE, B.A. (Bishop's), M.D., C.M., M.Sc.
Assistant Professor of Medicine *Royal Victoria Hospital*
1390 Sherbrooke St. W.

REGINALD ANDREW PATTERSON, B.A. (Mt. Allison), B.Paed. (Tor.)
Lecturer in Mathematics (Post-retirement) *Engineering Building*
655 Davaar Ave

DONALD R. PATTON, B.Com., C.A., L.C.M.I., R.I.A.
Associate Professor of Accountancy 660 St. Catherine St. West

GILBERT IVAN PAUL, B.Sc. (Alta.), M.Sc., Ph.D. (North Carolina)
Assistant Professor of Genetics
Biology Building
Apt. 32, 6580 Monkland Ave.

TOMAS JAN F. PAVLASEK, M.Eng.
Assistant Professor of Electrical Engineering
Engineering Building
720 - 50th Ave., Lachine

ROBERT W. PEARMAN, M.D., C.M., Dipl. in Ophthalmol.
Demonstrator in Ophthalmology
Montreal General Hospital
1374 Sherbrooke St. W.

FREDERICK RAY PECK
Purchasing Agent
3480 University St.
25 Maple Ave., Ste. Anne de Bellevue

JOHN EDWARD LANCELOT PECK, M.Sc. (Natal), Ph.D. (Yale)
Associate Professor of Mathematics
3425 University St.
4580 Sir George Simpson St., Lachine

SIDNEY PEDVIS, B.Sc., M.D., C.M.
Demonstrator in Paediatrics
Montreal Children's Hospital
1374 Sherbrooke St. W.

CARLETON BARNHART PEIRCE, A.B., M.Sc., M.D. (Michigan), F.A.C.P.
Professor of Radiology and Chairman of the Department
Royal Victoria Hospital
55 Aberdeen Ave.

RÉAL L. PELLETIER, B.Sc. (Montréal), Ph.D. (Wisconsin), M.Sc.
Assistant Professor of Plant Pathology
Macdonald College

RUTH MATHILDE PELTIER, B.A.
Assistant to the Director of the McGill Placement Service
3574 University St.
Apt. 10, 2028 Victoria St.

WILDER PENFIELD, O.M., C.M.G., Litt.B., Hon.D.Sc. (Princeton), M.D. (Johns Hopkins), M.A., D.Sc., D.C.L. (Oxon.), LL.D. (Wales), F.R.C.S. (Eng. and C.), F.R.S.C., F.R.S.
Professor of Neurology and Neurosurgery, Chairman of the Department, and Director of the Neurological Institute
Montreal Neurological Institute
4302 Montrose Ave.

RICHARD PENNINGTON, B.A. (Birmingham), Library Diploma (Lond.)
University Librarian
Redpath Library
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DOMINIQUE M. P. PENOT, Baccalaureat (U. of Aix-Marseilles), Licencié-ès-Lettres (U. of Montpellier)
Lecturer in Romance Languages
Arts Building
Apt. 4, 3425 Davidson St.

EUGENE PEPIN, Légion d'Honneur, Licencié-ès-Lettres, Docteur en Droit (Paris)
Professor of Law and Director of The Institute of International Air Law
Chancellor Day Hall
900 Sherbrooke St. W.

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ELEANOR SUSAN PERCIVAL, B.A., M.D., C.M., F.R.C.S. (C.)
Assistant Professor of Obstetrics and Gynaecology
Montreal General Hospital
1374 Sherbrooke St. W.

JAMES GORDON PETRIE, M.D., C.M.
Assistant Professor of Surgery
Royal Victoria Hospital
1374 Sherbrooke St. W.

ANN PEVERLEY, B.S. (Columbia), R.N.
Assistant Professor in the School for Graduate Nurses
Beatty Hall
Apt. 63, 418 Claremont Ave.

JOHN BERNARD PHILLIPS, M.B.E., M.Sc., Ph.D., F.C.I.C.
Professor of Chemical Engineering and Chairman of the Department
Physical Sciences Centre
29 Corona St., Rosemere

CARL PINSKY
Demonstrator in Physiology
Biological Building
7760 Stuart Ave.

WITOLD PIROZYNSKI, M.D. (Zurich)
Demonstrator in Pathology
Pathological Institute
Apt. 14, 1483 Atwater Ave.

RONALD E. G. PLACE, B.A., M.D., C.M., Dipl. in Med., F.R.C.P. (C.)
Demonstrator in Medicine and in Clinical Medicine
595 Victoria Ave., Westmount

BERNARD POLLAK, M.D. (Prague), F.A.C.C.P.
Demonstrator in Medicine and Clinical Medicine
Royal Edward Laurentian Hospital

JOSEPH STEWART POLSON, B.A., M.D., C.M.
Demonstrator in Medicine and in Clinical Medicine
Montreal General Hospital
1414 Drummond St.

JOSEPH PORTNUFF, M.D. (Man.)
Demonstrator in Obstetrics and Gynaecology
Royal Victoria Hospital
Suite 1, 1441 Crescent St.

ERNEST POSER, M.A. (Queen's), Ph.D. (Lond.)
Assistant Professor of Psychology
Donner Building
Apt. 10, 2101 Maplewood Ave.

THOMAS CHAPMAN POSTANS, D.D.S.
Demonstrator in Dentistry
5171 Doherty St.

VICTOR E. POTTER
Demonstrator in Dentistry
2224 Dorchester St. W.

WINIFRED IRENE POTTER, M.A. (Tor.), Ph.D. (Bryn Mawr)
Assistant Professor of English
Arts Building
6860 Monkland Ave.

ELTON ROY POUNDER, B.Sc., Ph.D.
Associate Professor of Physics
Physics Building
4420 Oxford Ave.

BRONYS POVILAITIS, M.Sc., Ph.D.
Research Associate in Genetics
Macdonald College

DAVID JOHN POWER, M.B., B.Ch., B.A.O. (Dublin)
Demonstrator in Anaesthesia — *St. Mary's Hospital*

MIGUEL PRADOS Y SUCH, B.A. (Granada), M.D. (Madrid)
Associate Professor of Psychiatry — *Allan Memorial Institute*, 432 Metcalfe Ave., Westmount

R. CRANFORD PRATT, B.Phil. (Oxon.), B.A.
Assistant Professor of Economics — *Purvis Hall*, 5500 Victoria Ave.

S. PREMVATI, B.Sc. (Benares Hindu Univ.), M.Sc., Ph.D. (Lucknow)
Research Associate in Parasitology — *Macdonald College*

JACQUELINE PRILLAMAN, B.A. (Randolph-Macon College, Virginia)
Lecturer in Mathematics — *3425 University St.*, 4952B Plamondon Ave.

THOMAS PRIMROSE, B.Sc., A.R.T.C. (Glasgow), M.B., Ch.B. (Edin.)
Lecturer in Obstetrics and Gynaecology — *Royal Victoria Hospital*, 2332 Fulton Rd., Town of Mount Royal

FRANCES HAZEN PRISSICK, B.A., M.D., C.M.
Lecturer in Bacteriology and Immunology — *Montreal Children's Hospital*, 27 Bellevue Ave.

JOSEPH EDWARD PRITCHARD, M.D. (Man.)
Associate Professor of Pathology — *Montreal General Hospital*, 239 Lazard Ave., Town of Mount Royal

ROBERT WESLEY PUGH
Director of Athletics at Macdonald College and Assistant Warden of Brittain Hall — *Macdonald College*, 81 - 3rd Ave., Vaudreuil Terrace, Que.

WILLIAM HOWARD PUGSLEY, M.B.A. (Harvard), B.Com., Ph.D.
Assistant Professor in the School of Commerce — *Purvis Hall*, Apt. 4, 3490 Peel St.

CLIFFORD B. PURVES, B.Sc., Ph.D. (St. Andrews), D.Sc. (Lawrence College), F.R.C.S.
E. B. Eddy Professor of Industrial and Cellulose Chemistry — *Pulp and Paper Building*, 2 Hudson Ave., Westmount

MARGARET PURVIS (MRS. A. B.), B.Sc.
Sessional Lecturer in Biochemistry — *Biological Building*, 1800 Bourgogne St., Chambly

RUDOLF PUTNAERGLIS, M.Eng. (McGill)
Assistant Professor of Mechanical Engineering — *Engineering Building*, 207 Clement Ave., Dorval

ROBERT LAVALLIN PUXLEY
Assistant to the Comptroller — *Dawson Hall*, Hudson Heights

ALBERT E. PYE, B.Sc., D.D.S.
Demonstrator in Dentistry — 1414 Drummond St.

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JUDA HIRSCH QUASTEL, Ph.D., D.Sc. (Cantab.), F.R.I.C., F.R.S.
Director of the McGill-M.G.H. Research Institute — *3619 University St.*, 3488 Northcliffe Ave.

THOMAS JAMES QUINTIN, M.D., C.M., F.A.C.P.
Lecturer in Medicine — 1550 White St., Sherbrooke

REUBEN RABINOVITCH, B.A. (New York), M.D. (Paris), M.Sc.
Lecturer in Neurology and Neurosurgery — *Montreal Neurological Institute*, 5797 Deom Ave.

SAM RABINOVITCH, Ph.D. (Purdue), M.A.
Assistant Professor of Psychology — *Montreal Children's Hospital*, 615 Bloomfield Ave.

ARTHUR GERALD RACEY, D.D.S., F.A.C.D.
Associate Professor of Dentistry — 1414 Drummond St.

GEORGE RAMSAY
Manager of the University Book Store — *3480 University St.*, 4546 Wilson Ave.

BAINDUR G. RAO, B.Sc. (Madras Christian College), M.Pharm. (Benares Hindu Univ.)
Research Associate in Biochemistry — *Biological Building*, 3519 Hutchison St.

THEODORE BROWN RASMUSSEN, B.S., B.M., M.D., M.S. (Minn.)
Professor of Neurology and Neurosurgery and Deputy Chairman of the Department — *Montreal Neurological Institute*, 29 Surrey Drive, Town of Mount Royal

JOAN C. RATTENBURY, Ph.D. (California), M.Sc.
Lecturer in Zoology — *Biological Building*, Apt. 1, 1017 Atwater Ave.

BASIL RATTRAY, M.Sc.
Assistant Professor of Mathematics — *3425 University St.*, Apt. 103, 1085 McGregor St.

LEE CARLTON RAYMOND, M.S. (Wisconsin), F.A.I.C.
Professor of Agronomy (Post-retirement) — *Macdonald College*

RODERICK ROY REAL, B.Sc. (Sask.)
Demonstrator in Electrical Engineering — *Engineering Building*, 5 Ingleside Ave., Westmount

GEORGE ERNEST REED, M.B. (Tor.), F.A.P.A.
Assistant Professor of Psychiatry — *Allan Memorial Institute*, P.O. Box 6034, Montreal

ROGER W. REED, M.A. (Queen's), M.D., C.M.
Professor of Bacteriology and Chairman of the Department — *Pathological Institute*, 4625 Trenholme Ave.

ERNEST ALLAN STEWART REID, B.A., M.D., C.M.
Demonstrator in Medicine — 485 Strathcona Ave., Westmount

R. GRANT REID, M.D., C.M.
Assistant Professor of Surgery — *Montreal General Hospital*, 1414 Drummond St.

W. Stanford Reid, Th.M. (Westminster), Ph.D. (Pennsylvania), M.A.
Associate Professor of History and Warden of Douglas Hall — *Arts Building*, 3851 University St.

Walter A. Reid, B.Com. (Queen's), C.P.A.
Internal Auditor — *Dawson Hall*, 3084 St. Charles Rd., Beaconsfield

Marie-Thérèse Reverchon, O.I.P., L.-ès-L., Diplômée d'Études Supérieures (Paris), Agregée de l'U. de France
Assistant Professor of Romance Languages — *Arts Building*, Apt. 4, 50 Academy Rd.

Arthur Douglas Richardson, D.D.S.
Lecturer in Dentistry — 1414 Drummond St.

John Evans Riddell, B.Eng., M.Sc., Ph.D.
Assistant Professor of Geological Sciences — *Physical Sciences Center*, 1780 Cedar Ave.

André Albert Rigault, Licencié-ès-Lettres, Diplômé d'Études Supérieures (Paris)
Assistant Professor of French and Director of the French Summer School — *Arts Building*, 1465 Bernard Ave. W.

Alexander Charles Ritchie, M.B., Ch.B. (Otago) B. Phil. (Oxon.)
Assistant Professor of Pathology — *Pathological Institute*, 1300 Pine Ave. W.

Susan Ritchie, M.D. (Ludwig Maximilian Univ.)
Demonstrator in Pathology — *Pathological Institute*, 5550 Cote St. Luc Rd.

J. Preston Robb, M.D., C.M., M.Sc.
Assistant Professor of Neurology — 1610 Pine Ave. W., 419 Roslyn Ave., Westmount

H. Lamar Roberts, B.A. (Texas), M.D. (Duke), M.Sc., Ph.D.
Lecturer and Reford Fellow in Neurology and Neurolosurgery — *Montreal Neurological Institute*, 2323 Goyer St.

Alexander Allen Robertson, B.Sc. (Alberta), Ph.D.
Research Associate in Chemistry — 5603 Rand Ave., Cote St. Luc

Roderick Francis Robertson, B.A. (British Columbia), Ph.D.
Sessional Lecturer in Chemistry — *Chemistry Building*, Apt. A1, 1463 Bishop St.

Rocque Robillard, B.Sc.
Instructor in Athletics — *Currie Gymnasium*, Apt. 32, 4251 Marcil Ave.

James Gordon Robson, M.B., Ch.B. (Glasgow), D.A. (R.C.S. Eng.), F.F.A.R.C.S.
Professor of Anaesthesia — *Biology Building*, 3856 Marlowe Ave.

William Sherman Rodger, B.A., M.D., C.M.
Lecturer in Medicine — 221 South St., Cowansville

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KENNETH HERBERT ROGERS, L.Th. (Wycliffe), M.A., Ph.D. (Tor.), Dipl. Am. Psychol. Assoc.
Lecturer in Divinity — *Divinity Hall*, 3473 University St.

MERVIN A. ROGERS, B.A. (Bishop's), D.D.S.
Associate Professor of Dentistry — *Donner Building*, 1534 Crescent St.

TADEUSZ ROMER, Licencié-ès-Sciences Politiques et Sociales (Lausanne)
Assistant Professor of Romance Languages and Assistant to the Chairman of the Department — *Arts Building*, Apt. 21, 495 Prince Arthur St. W.

HOWARD ROOT, M.Sc. (M.I.T.), M.D., C.M.
Demonstrator in Anatomy — 4858 Westmount Ave., Westmount

MURIEL V. ROSCOE, A.M., Ph.D. (Radcliffe), D.Sc. (Acadia), LL.D. (Queen's)
Warden of the Royal Victoria College, Macdonald Professor of Botany, and Chairman of the Department — *Royal Victoria College*

BRAM ROSE, B.A., M.D., C.M., M.Sc., Ph.D.
Associate Professor of Medicine — *Royal Victoria Hospital*, 636 Victoria Ave., Westmount

HARRY ROSEN, D.D.S.
Demonstrator in Dentistry — 1538 Sherbrooke St. W.

LOUIS JULIUS ROSEN, D.D.S.
Lecturer in Dentistry — Apt. 20, 3465 Cote des Neiges Rd.

EDWARD ROSENTHALL, Ph.D. (Calif. Inst. of Tech.), M.Sc.
Professor of Mathematics and Building Director of Mathematics House — *3425 University St.*, 3237 Appleton Ave.

AILEEN DANSKEN ROSS, B.Sc. (Econ.) (Lond.), M.A., Ph.D. (Chicago)
Assistant Professor of Sociology — *Arts Building*, 1515 Chomedy St.

ALAN ROSS, M.D., C.M.
Professor of Paediatrics and Chairman of the Department — *Montreal Children's Hospital*

ARCHIBALD STEWART ROSS, B.A. (Western Ont.), A.M. (Oberlin), Ph.D.
Associate Professor of Chemistry — *Chemistry Building*, Apt. 201, 3432 Peel St.

HUGH GRAHAM ROSS, E.D., M.D., C.M.
Lecturer in Health and Social Medicine — 990 Notre Dame St. W.

JAMES DRUMMOND ROSS, B.A.
Sessional Lecturer in Philosophy — *Arts Building*, 65 Rosemount Crescent

JAMES HAMILTON ROSS, D.Sc. (Geneva), B.Sc.
Honorary Lecturer in Chemistry — 1669-b Sherbrooke St. W.

VERITY MITCHELL ROSS, B.Sc. (Columbia), M.Sc., Ph.D.
Assistant Professor in the School of Social Work — *3600 University St.*, Apt. 201, 3432 Peel St.

VERNON ROSS, B.S. in Lib. Sci. (Columbia), M.A.
Director of the Library School and Associate Professor of Library Science
Redpath Library
3015 Sherbrooke St. W.

JOAN E. ROTHMAN, B.A. (Toronto), M.A. (Cornell)
Demonstrator in Sociology
Arts Building
335 Clarke Ave., Westmount

J. HOLDEN ROUTLEDGE, M.D., C.M., M.R.C.O.G., F.R.C.S. (C.)
Lecturer in Obstetrics and Gynaecology
Montreal General Hospital
54 Winston Rd., Pointe Claire

PHILIP GEORGE ROWE, B.Sc., M.D., C.M., F.R.C.S. (C.)
Professor of Surgery and Chairman of the Department
Montreal General Hospital

WILLIAM ROWLES, B.Sc. (Sask.), M.Sc., Ph.D.
Professor of Agricultural Physics and Chairman of the Department
Macdonald College

DAVID RUBENSTEIN, M.Sc., Ph.D.
Research Associate in Biochemistry
Biological Building
Apt. 9, 2061 Decarie Blvd.

HOWARD ERNEST CHARLES RUBIE, B.Sc. (Oxon.)
McGill University Representative in Great Britain
Dulwich College, London S.E.21, England

JACK H. RUBIN, B.Sc., M.D., C.M., F.C.C.P.
Demonstrator in Medicine
1564 Van Horne Ave.

HEINZ T. K. RUCK, Ph.D. (Graz)
Research Associate in Chemistry
Chemistry Building
3712 Jeanne Mance St.

DONALD WILLIAM H. RUDDICK, B.A., M.D., C.M., F.R.C.S.
Demonstrator in Surgery
Montreal General Hospital
1491 Crescent St.

HOWARD RICHARDSON RYAN, B.A. (Acadia), B.P.E. (Springfield)
Assistant Professor of Physical Education and Director of Intramural Athletics
Currie Gymnasium
Apt. 5, 635 Laurentian Blvd.

RICHARD PATRICK WILLIAM RYAN, B.A. (Loyola), D.D.S.
Demonstrator in Dentistry
3410 Benny Ave.

MURRAY SAFFRAN, M.Sc., Ph.D.
Assistant Professor of Psychiatry
Allan Memorial Institute
5140 Mayfair Ave.

M. MARIA SALISNJAK, M.D. (Innsbruck)
Teaching Fellow in Pathology
Pathological Institute
5418 Montclair Ave.

TALAT SALMAN, M.Eng.
Assistant Professor of Mining Engineering
Physical Sciences Centre
11885 Filion St., Cartierville

McGILL UNIVERSITY LIBRARY

GIAN CARLO SALMOIRAGHI, Dr. Med. and Surg. (Univ. Roma)
Lecturer in Physiology — *Biological Building*, 4855 Walkley Ave.

WILLIAM D. SANDERS
Demonstrator in Dentistry — 4535 Marcil Ave.

GERALD J. SARWER-FONER, M.D. (Univ. of Montreal), L.M.C.C., D.N.B.
Demonstrator in Psychiatry — *Allan Memorial Institute*, 6335 Lennox Ave.

VINCENT ALEXANDER SAUL, D.Sc. (M.I.T.), B.Sc.
Assistant Professor of Geological Sciences — *Physical Sciences Centre*, 1 - 6th St., Roxboro, Que.

ERNEST EDWARD SCHARFE, M.D., C.M., D.L.O. (R.C.P. & S.)
Assistant Professor of Otolaryngology — *Montreal General Hospital*, Suite 706, 1414 Drummond St.

HAROLD IRVIN SCHIFF, M.A., Ph.D. (Tor.)
Assistant Professor of Chemistry — *Chemistry Building*, Apt. 6, 4925 Maplewood Ave.

WALTER HERBERT SCHIPPEL, B.Sc., M.Eng.
Associate Professor of Electrical Engineering — *Engineering Building*, 117 Graham Boulevard, Town of Mount Royal

ANTON BERNHARD CHRISTOPH SCHLICHTER
Accountant — *Dawson Hall*, Apt. 5, 4130 Decarie Blvd.

PETER GORDON SCHOLEFIELD, M.Sc. (Wales), Ph.D.
Lecturer in Biochemistry and Research Associate in the McGill - M.G.H. Research Institute — *Montreal General Hospital*, Apt. 16, 3660 Lorne Crescent

PAULA HELEN SCHOPFLOCHER, M.D. (Heidelberg)
Lecturer in Pathology and Demonstrator in Medicine — *Royal Victoria Hospital*, 789 Upper Belmont Ave.

JULIUS JAN WLODZIMIERZ SCHREIBER, B.Sc.(Arch.) (Glasgow)
Lecturer in Architecture — *3484 University St.*, Apt. 11, 3530 Durocher St.

ALBERT J. SCHUTZ, B.A. (Loyola), D.D.S.
Demonstrator in Dentistry — 4695 Sherbrooke St. W.

FRANK R. SCOTT, B.A. (Oxon. and Bishop's), B.Litt. (Oxon.), B.C.L., F.R.S.C.
Macdonald Professor of Law — *Chancellor Day Hall*, 451 Clarke Ave., Westmount

HALDANE RUPERT SCOTT, B.Sc. (Acadia), Sc.M., Ph.D. (Brown)
Associate Professor of Zoology — *Biological Building*, Rear, 3560 University St.

HENRY JAMES SCOTT, B.A., M.D., C.M., F.R.C.S. (C.)
Demonstrator in Surgery — *Montreal General Hospital*, 1414 Drummond St.

WILLIAM CLIFFORD MUNROE SCOTT, B.Sc., M.B. (Tor.), L.M.S.S.A. (Lond.), D.P.M. (Conjoint Board, Lond.)
Associate Professor of Psychiatry
Allan Memorial Institute
4872 Melrose Ave.

JESSIE BOYD SCRIVER (MRS. W. DEM.), B.A., M.D., C.M., F.A.A.P., F.R.C.P. (C.)
Associate Professor of Paediatrics
Royal Victoria Hospital
1374 Sherbrooke St. W.

WALTER DEM. SCRIVER, M.A., M.D., C.M., F.A.C.P., F.R.C.P. (C.)
Professor of Medicine
Royal Victoria Hospital
1374 Sherbrooke St. W.

HAROLD NATHAN SEGALL, M.D., C.M., F.A.C.P.
Assistant Professor of Medicine
Montreal General Hospital
1538 Sherbrooke St. W.

ALEC SEHON, M.Sc., Ph.D. (Manchester)
Assistant Professor of Chemistry
Donner Building
Apt. 113, 3425 Ridgewood Ave.

PAUL SEKELJ, B.E., Dr. Elect. Physics (Badiche Techn. Hoch., Karlsruhe)
Assistant Professor of Physiology
Biological Building
3534 Grey Ave.

DAVID SELBY, B.Eng.
Assistant Professor of Civil Engineering
Engineering Building
1785 Depatie, Cote St. Laurent

ALPHONSE SENAY, B.C.L. (Montréal)
Lecturer in Law
Chancellor Day Hall
67 East St. Charles St., Longueuil

CHARLES SHAGASS, M.S. (Rochester), M.D., C.M.
Assistant Professor of Psychiatry and Director of the E.E.G. Laboratory
Allan Memorial Institute
4827 Fulton Ave.

JAMES GRANT SHANNON, M.D. (Tor.), F.A.C.S.
Assistant Professor of Surgery
Montreal General Hospital
1414 Drummond St.

LORNE SHAPIRO, M.D., C.M.
Lecturer in Medicine
4119 Sherbrooke St. W.

ROBERT THOMAS SHARP, M.Sc.
Associate Professor of Mathematics
Physical Sciences Centre
Rosemere

FRANK W. SHAVER, M.D., C.M.
Lecturer in Otolaryngology
Montreal General Hospital
Suite 4, 1374 Sherbrooke St. W.

CHARLES ARTHUR SHERIDAN, M.D., C.M. (Queen's)
Demonstrator in Anaesthesia
Royal Victoria Hospital
17 Highfield Ave., Town of Mount Royal

McGILL UNIVERSITY LIBRARY

FREDERICK SHIPPAM, M.D., C.M., M.R.C.P. (Edin.)
Demonstrator in Paediatrics — *Montreal Children's Hospital*, 1538 Sherbrooke St. W.

DAVID T. SHIZGAL, D.D.S.
Lecturer in Dentistry — 1396 St. Catherine St. W.

ISRAEL SHRAGOVITCH, M.D., C.M.
Demonstrator in Surgery — *Royal Victoria Hospital*, Suite 111, 1538 Sherbrooke St. W.

ISRAEL HIRSH SHTERN, B.Sc. (Sir George Williams), M.A. (New York)
Lecturer in Mathematics — *3425 University St.*, Apt. 4, 5216 Esplanade Ave.

DAVID JAMES SIENIEWICZ, B.A. (U.N.B.), M.D., C.M. (Dalhousie)
Demonstrator in Radiology — *Montreal General Hospital*, Apt. 217, 3787 Cote des Neiges Rd.

WARREN SIGHTS, M.D. (Chicago)
Demonstrator in Neurology — *Montreal Neurological Institute*, Apt. 14, 3657 Oxenden Ave.

RAISSA SILOV, M.D. (Dorpat)
Lecturer in Bacteriology — *Pathological Institute*, 4950 Walkley Ave.

BARUCH SILVERMAN, M.D., C.M., F.A.P.A., F.A.A.M.D.
Associate Professor of Psychiatry — 531 Pine Ave. W.

BEATRICE VINA SIMON, M.A., Dipl. L.S.
Assistant University Librarian — *Redpath Library*, Apt. 17, 3520 McTavish St.

MORRIS A. SIMON, B.A., M.D. (Western Reserve)
Demonstrator in Pathology — *Jewish General Hospital*, 279 Kenaston Ave., Town of Mount Royal

GEORGE ALBERT SIMPSON, M.D., C.M., F.R.C.O.G., F.A.C.S.
Assistant Professor of Obstetrics and Gynaecology — *Royal Victoria Hospital*, 462 Wood Ave.

MARGERY EILEEN SIMPSON, B.A.
Lecturer in English — *Arts Building*, Apt. 223, 3425 Ridgewood Ave.

HAZEN E. SISE, B.Sc. (Arch.) (M.I.T.), A.R.I.B.A., M.R.A.I.C.
Lecturer in the School of Architecture — *3484 University St.*, 5060 Western Ave.

CLIFFORD HUMPHREY SKITCH, B.A., M.D. (Alta.)
Lecturer in Psychiatry — *Verdun Protestant Hospital*

STANLEY C. SKORYNA, M.D. (Vienna), Ph.D. (Bratislava)
Research Associate in Experimental Surgery — *Donner Building*, 14 Forden Ave., Westmount

ROBERT HENRY LAWSON SLATER, M.A. (Cantab.), Ph.D. (Columbia)
Professor of Systematic Theology and Principal of the Diocesan Theological College — *Divinity Hall*, 3475 University St.

FRASER GORDON SLEIGH, M.A. (Aberdeen)
Lecturer in English
Arts Building
4262 Dorchester St. W.

R. BRUCE SLOANE, M.B., B.S., M.R.C.P., M.D. (Lond.)
Lecturer and Senior Research Assistant in Psychiatry
Allan Memorial Institute
660 Lansdowne Ave., Westmount

HENRY JAMES SMART
Demonstrator in Dentistry
7122 Somerled Ave.

CLARENCE E. SMITH, B.Sc. (Lond.), M.A., D.Paed. (Tor.)
Macdonald Professor of Education, Chairman of the Department in the Faculty of Arts and Science, and Deputy Director of the Institute of Education
Arts Building
4111 Beaconsfield Ave.

CLIFTON C. SMITH, B.A. (Ohio), M.D., C.M.
Demonstrator in Psychiatry
Queen Mary Veterans Hospital

E. JOHN SMITH, M.D., C.M. (Dal.)
Demonstrator in Otolaryngology
Montreal General Hospital
1538 Sherbrooke St. W.

EMERSON C. SMITH, M.D., C.M., F.A.C.S., F.R.C.S. (C.)
Clinical Professor of Surgery
804-3455 Cote des Neiges Rd.

F. McIVER SMITH, M.D., C.M., M.Sc., F.A.C.P.
Assistant Professor of Medicine
Montreal General Hospital
631 Roslyn Ave.

JOY RUTH SMITH, M.S.W.
Special Lecturer in the School of Social Work
3600 University St.
Chemin du Petit Bois, Varennes

MAY ANNETTS SMITH (MRS.), M.A., Ph.D. (Tor.)
Demonstrator in Agricultural Physics
Macdonald College
4111 Beaconsfield Ave.

WILFRED CANTWELL SMITH, B.A. (Tor.), Ph.D. (Princeton)
W. M. Birks Professor of Comparative Religion and Director of the Institute of Islamic Studies
Divinity Hall
4421 Hingston Ave. N.D.G.

JAMES A. SODEN, B.C.L.
Lecturer in Law
Chancellor Day Hall
5278 Byron Ave.

CECIL DAVID SOLIN, Ph.D. (Tor.), M.A.
Associate Professor of Mathematics and Assistant Dean of the Faculty of Arts and Science
Arts Building
Apt. 8, 5866 Decelles Ave.

DAVID N. SOLOMON, Ph.D. (Chicago), M.A.
Assistant Professor of Sociology and Anthropology
Arts Building
4790 Meridian Ave.

THEODORE LIONEL SOURKES, Ph.D. (Cornell), M.Sc.
Assistant Professor of Psychiatry
Allan Memorial Institute

McGILL UNIVERSITY LIBRARY

DOUGLAS WALTER SPARLING, M.D. (Tor.), A.B.O.G., M.R.C.O.G., F.A.C.S.
Lecturer in Obstetrics and Gynaecology — *Montreal General Hospital*
1414 Drummond St.

HAROLD JOHN SPENCE-SALES, B.A. (New Zealand)
Associate Professor of Architecture — *3484 University St.*
60 rue de Bretagne, Preville

HUGH D. SPROULE, B.A. (Dal.)
Lecturer in English — *Arts Building*
3485 McTavish St.

COOPER HARRY STACEY, M.D., C.M.
Demonstrator in Medicine — *Royal Victoria Hospital*

JULES W. STACHIEWICZ, M.Eng.
Assistant Professor of Mechanical Engineering — *Engineering Building*
4577 Kensington Ave.

ALEXANDER McT. STALKER, B.A., B.C.L.
Lecturer in Law — *354 Notre Dame St. W.*
40 Cornwall Ave., Town of Mount Royal

MURRAY RAYMOND STALKER, M.D., C.M.
Lecturer in Medicine — Ormstown

RONALD LELAND STANFORD, M.D., C.M., Dipl. Int. Med.
Demonstrator in Medicine — 1538 Sherbrooke St. W.

JOHN STANLEY, B.A. (U.B.C.), M.A., Ph.D. (Minnesota)
Chairman of the Biological Sciences Group in the Faculty of Arts and Science, Professor of Zoology, Chairman of the Department, and Director of the Biological Building — *Biological Building*
4675 Acadia Rd., Lachine

EDWARD J. STANSBURY, M.A., Ph.D. (Tor.)
Lecturer in Physics — *Eaton Electronics Laboratory*
11705 Lavigne St.

TAYLOR STATTEN, M.D. (Tor.)
Associate Professor of Psychiatry — *Montreal Children's Hospital*

COLIN W. STEARN, B.Sc. (McMaster), M.S., Ph.D. (Yale)
Assistant Professor of Geological Sciences — *Physical Sciences Centre*
Apt. 301, 7025 Fielding Ave.

GASTON FERNAND STEGEN, B.A. (Sir Geo. Williams), M.A. (Middlebury), F.I.L.
Assistant Professor of Spanish — *Arts Building*
Apt. 204, 3455 Stanley St.

LLOYD G. STEPHENS-NEWSHAM, B.A. (Sask.), Ph.D.
Assistant Professor of Physics in the Department of Radiology — *Royal Victoria Hospital*
18 Basswood Circle, Pointe Claire

HOWARD ALVEY STEPPLER, B.Sc.Agr. (Man.), M.Sc.
Associate Professor of Agronomy and Chairman of the Department — *Macdonald College*

MURIEL H. STERN (MRS. L.), B.Sc.
Sessional Lecturer in Psychology — *Peterson Hall*
95 Finchley Rd., Hampstead

JAMES WILLIAM STEVENSON, M.D., C.M. (Queen's)
Associate Professor of Bacteriology and Immunology
Pathological Institute
4100 Old Orchard Ave., N.D.G.

JOHN SINCLAIR STEVENSON, B.A., B.Ap.Sc. (U.B.C.), Ph.D. (M.I.T.), F.M.S.A., F.G.S.A., F.R.S.C.
Associate Professor of Geological Sciences
Physical Sciences Centre
Box 100, Hudson Heights

LLOYD G. STEVENSON, B.A., M.D. (Western), Ph.D. (Hopkins)
Dean of the Faculty of Medicine, Professor of History of Medicine, and Librarian
Medical Building
471 Argyle Ave., Westmount

MARY STEVENSON (MRS. DAVID G.), B.A. (Sask.), Dipl. Soc. Wk. (Tor.), M.S.W.
Assistant Professor in the School of Social Work
3600 University St.
367 Tiffin Rd., St. Lambert

BRIAN STEWART, M.B.B.S., M.R.C.P. (Lond.)
Lecturer and Research Associate in Physiology
Biological Building
3496 Grey Ave.

JAMES DOUGLAS STEWART, B.Sc., D.D.S.
Demonstrator in Dentistry
89 Cloverdale Ave., Dorval

K. ROYAL STEWART, B.Sc. (Bishop's), M.D., C.M.
Teaching Fellow in the University Medical Clinic, R.V.H.
Royal Victoria Hospital
110A Arlington Ave., Westmount

MARGARET ROBERTSON STEWART, B.H.S.
Lecturer in Home Economics
Macdonald College

ALICE MAY STICKWOOD, B.Sc., M.A. (Columbia)
Lecturer (Food and Dietetics) in Household Science
Macdonald College

WILLIAM G. STOCKWELL, D.D.S.
Lecturer in Dentistry
Royal Victoria Hospital
1538 Sherbrooke St. W.

WILLIAM STORRAR, M.B.E., M.B., Ch.B. (Edin.)
Lecturer in Health and Social Medicine
Montreal General Hospital
4871 Victoria Ave.

MANUEL STRAKER, M.D., C.M
Lecturer in Psychiatry
1538 Sherbrooke St. W.

MARION G. STRANG (MRS.)
Warden, Stewart Hall
Macdonald College

ALEX STRASBERG, M.D., C.M.
Demonstrator in Surgery
Royal Victoria Hospital
1396 St. Catherine St. W.

JOSEPH G. STRATFORD, B.Sc., M.D.,C.M.
Lecturer in Neurology and Neurosurgery
Montreal General Hospital
1559 Pine Ave. W.

McGILL UNIVERSITY LIBRARY

GEORGE J. STREAN, B.A., M.D., C.M., M.R.C.O.G., F.A.C.S., F.R.C.S. (C.)
Assistant Professor of Obstetrics and Gynaecology
Royal Victoria Hospital
Suite 116, 1538 Sherbrooke St. W.

EDWIN ALEXANDER STUART, M.A. (U.N.B.), M.D., C.M., F.R.C.S. (Edin. and C.)
Lecturer in Otolaryngology
Royal Victoria Hospital
1390 Sherbrooke St. W.

DAVID STUBINGTON, M.B.B.S. (Lond.), L.M.C.C.
Teaching Fellow in Medicine and Clinical Medicine
Royal Victoria Hospital
Apt. 8, 3524 Durocher St.

LAWRENCE SULLIVAN
Instructor in Physical Education
Currie Gymnasium
278 Hamilton Blvd., Rosemere

WILLIAM FRANCIS SUMMERS, B.Sc. (Dal.), M.Sc.
Assistant Professor of Geography
Arts Building
207 Bedbrook Ave., Montreal West

HYMAN SURCHIN, M.D., C.M., Dipl. Paed., F.R.C.P. (C.)
Demonstrator in Paediatrics
1538 Sherbrooke St. W.

DAVID SUSSMAN, B.A.
Lecturer in Mathematics
3425 University St.
Apt. 307, 2767 Maplewood Ave.

JOSEPH CARL SUTTON, B.A. (St. Joseph's), M.D., C.M.
Lecturer in Surgery
Montreal General Hospital
1538 Sherbrooke St. W.

WALTER SWISTUN, D.D.S.
Demonstrator in Dentistry
4637 Sherbrooke St. W.

EDWARD J. TABAH, M.D., C.M., Dipl. (Am. Bd. Surg.), F.R.C.S.
Demonstrator in Surgery
1374 Sherbrooke St. W.

GEORGE T. TAMAKI, B.A. (U.B.C.), LL.B. (Dal.), LL.M. (Tor.)
Lecturer in Law
Chancellor Day Hall
54 Fifth Ave., Lakeside

CHARLES E. TANNER, B.Sc. (Purdue)
Demonstrator and Teaching Fellow in Bacteriology
Pathological Institute
548 Prince Arthur St. W.

HAROLD A. TANSEY, Q.C., B.A. (Loyola), LL.B. (Montréal)
Lecturer in Law
Chancellor Day Hall
4563 Oxford Ave.

CHARLES DANIEL TAPER, M.Sc. Agr. (U.B.C.), Ph.D. (Man.)
Assistant Professor of Horticulture
Macdonald College

HERBERT TATE, B.Sc. (Nat. U., Ireland), M.A. (Dublin)
Professor of Mathematics and Chairman of the Department
Arts Building
4493 Marcil Ave.

WILLIAM FREDERICK TATLOW, M.D. (Lond.), M.R.C.P. (Lond.)
Assistant Professor of Neurology — *Montreal General Hospital*

ALFRED TAURINS, Dr. Chem. (Riga)
Associate Professor of Chemistry — *Biological Building*
308 Westminster Ave., Montreal West

GRAHAM C. TAYLOR, B.Sc., M.D., C.M.
Lecturer in Psychiatry and Assistant to the Director
Allan Memorial Institute
1915 Laird Blvd., Town of Mount Royal

HERBERT TEES, B.A., B.C.L.
Lecturer in Law — *Chancellor Day Hall*
46 Strathcona Drive, Town of Mt. Royal

WILLIAM MURRAY TELFORD, M.Sc., Ph.D.
Lecturer in Physics — *Radiation Laboratory*
4590 Wilson Ave.

PAUL P. TELNER, M.D. (Montréal)
Demonstrator in Medicine and Clinical Medicine — *Royal Victoria Hospital*
4827 LaPeltrie St.

G. ALBERT TERRAULT, B.A., LL.L. (Montreal)
Lecturer in Law — *Chancellor Day Hall*
363 Blvd. St. Rose, St. Rose

FERDINAND RICHARD TERROUX, B.A. (Loyola), Ph.D. (Cantab.), M.Sc.
Associate Professor of Physics — *Radiation Laboratory*
Apt. 66, 1509 Sherbrooke St. W.

KATHLEEN GODWIN TERROUX (MRS. F.R.), B.A., M.Sc., Ph.D.
Assistant Professor of Physiology — *Biological Building*
Apt. 66, 1509 Sherbrooke St. W.

ALEXANDER THEODORE THOM, M.D. (Tor.), B.A.
Lecturer in Medicine — *Royal Victoria Hospital*
3448 Peel St.

ALAN G. THOMPSON, M.D., C.M., Dipl. in Surg., F.R.C.S. (C.)
Demonstrator in Surgery — *Montreal General Hospital*
597 Victoria Ave., Westmount

ALLAN LLOYD THOMPSON, B.A. (Bishop's), Ph.D.
Research Associate in Physics and Scientific Consultant to the Gas Dynamics Laboratory — *Radiation Laboratory*
63 Ballantyne Ave. N.

G. BARRY THOMPSON, B.P.E. (U.B.C.), M.Sc. (Springfield)
Instructor in Physical Education — *Currie Gymnasium*
5210 MacMahon Ave.

DAVID LANDSBOROUGH THOMSON, B.Sc., M.A. (Aberdeen), Ph.D. (Cantab.), LL.D. (Aberdeen and Middlebury), F.C.I.C., F.R.S.C.
Vice-Principal of McGill University, Dean of the Faculty of Graduate Studies and Research, Gilman Cheney Professor of Biochemistry, and Chairman of the Department — *Biological Building*
Apt. 2, 3521 University St.

McGILL UNIVERSITY LIBRARY

JAMES SUTHERLAND THOMSON, M.A. (Glasgow), D.D. (Glasgow, Emmanuel, Toronto), LL.D. (McMaster, Manitoba, Queen's, Toronto, Washington State, McGill, Alberta), F.R.S.C.
Dean of the Faculty of Divinity and J. W. McConnell Professor of the Philosophy and Psychology of Religion — *Divinity Hall*, 1490 Crescent St.

WILLIAM WENDEL TIDMARSH, B.Sc. (Dal.), M.D., C.M.
Demonstrator in Paediatrics — *Montreal Children's Hospital*, 1390 Sherbrooke St. W.

TORE ERIK TIMELL, Lic. Civ. Eng., Dr. Sci. Tech. (Royal Inst. of Tech., Stockholm)
Research Associate in Chemistry — *Pulp and Paper Building*, 5589 Clanranald Ave.

MURIEL W. TOMKINS, B.A. (Sir George Williams), M.A. (Wisconsin)
Lecturer in the Institute of Education — *Macdonald College*, 6569 Beaulieu St.

GEORGE HUGH NEIL TOWERS, M.Sc.
Assistant Professor of Botany — *Biological Building*, Apt. 3, 3638 Durocher St.

MILTON G. TOWNSEND, M.D., C.M.
Lecturer in Health and Social Medicine — 1261 Shearer St.

ROBERT TOWNSEND, M.Ch.Orth. (Liverpool), M.D., C.M., F.R.C.S. (Edin. and C.)
Demonstrator in Surgery — *Royal Victoria Hospital*, 4415 Mariette Ave.

STUART ROSS TOWNSEND, B.A., M.D., C.M., F.A.C.P.
Assistant Professor of Medicine — *Montreal General Hospital*, Suite 901, 1414 Drummond St.

MARY FAYRE TREMAIN
Demonstrator in Physical and Occupational Therapy — *Beatty Hall*, 5608 Queen Mary Rd.

G. EDWARD TREMBLE, M.D., C.M., D.L.O. (R.C.P. & S.), F.R.C.S. (C.)
Assistant Professor of Otolaryngology — *Royal Victoria Hospital*, 1390 Sherbrooke St. W.

HELEN HUNTLY TUCK, B.A. (Man.), M.S.W.
Assistant Professor in the School of Social Work — *3600 University St.*, Apt. 5, 528 Pine Ave. W.

MORTIMER M. TUNIS, B.Sc. (Sir Geo. Williams), M.D., C.M.
Lecturer and Fellow in Psychiatry and Lecturer in Medicine and Clinical Medicine — *Allan Memorial Institute*, Apt. 18, 3790 Cote St. Catherine Rd.

WILLIAM TURNBULL, M.D., C.M.
Lecturer in Ophthalmology — *Royal Victoria Hospital*, Suite 1117, 1414 Drummond St.

JACK THORNE TURNER, B.Sc., M.A. (West Virginia), D.B.A. (Indiana)
Associate Professor in the School of Commerce — *Purvis Hall*, 2019 Connaught Ave.

JAMES GILBERT TURNER, M.Sc. (Columbia), M.D., C.M.
Lecturer in Health and Social Medicine and Consultant in Hospital Services
Royal Victoria Hospital
Apt. 403, 1535 Summerhill Ave.

ALICE ELISABETH TURNHAM (MRS. R. S.), B.Sc.
Director of University Museums and Curator of Ethnology
Redpath Museum
187 Westcroft Rd., Beaconsfield W.

FREDERICK JOHN TWEEDIE, B.A. (U.N.B.), M.D., C.M.
Demonstrator in Obstetrics and Gynaecology
Royal Victoria Hospital
Suite 1, 1374 Sherbrooke St. W.

JAMES S. TYHURST, M.D., C.M., Cert. Psychiat. (R.C.P. & S.)
Associate Professor of Psychiatry and Research Psychiatrist
Allan Memorial Institute
3780 Cote des Neiges Rd.

LIBUSE TYHURST (MRS. J.S.), M.D. (Prague)
Demonstrator in Psychiatry
Allan Memorial Institute
3780 Cote des Neiges Rd.

BARNEY DAVID USHER, B.A., M.D., C.M.
Assistant Professor of Medicine
Montreal General Hospital
1538 Sherbrooke St. W.

SAUL JULIUS USHER, B.A., M.D., C.M.
Demonstrator in Paediatrics
Montreal Children's Hospital
4966 Decarie Blvd.

GERALD ANDREW VALLILLEE, M.A.
Assistant Professor of Classics
Arts Building
Macdonald College

ARIE VAN STEENBERGEN
Demonstrator in Physics
Radiation Laboratory
Apt. 20, 3241 Forest Hill Ave.

JONATHAN E. VAN VLIET, D.D.S.
Demonstrator in Dentistry
1538 Sherbrooke St. W.

EMMANUEL D. VARVERIKOS, B.A. (Sir Geo. Williams), M.D. (Laval), M.Sc.
Demonstrator in Anatomy
Medical Building
5640 Somerled Ave.

ELEANOR M. H. VENNING, M.Sc., Ph.D.
Associate Professor of Experimental Medicine
Royal Victoria Hospital
4167 Marlowe Ave.

GUY VIAU
Assistant Professor of Fine Arts
3450 Drummond St.
3821 Harvard Ave.

ROLAND J. VIGER, A.B. (Catholic Univ. of Amer.), M.D., C.M.
Lecturer in Ophthalmology
Montreal General Hospital
1414 Drummond St.

JOHN VINCELLI, D.D.S.
Demonstrator in Dentistry
4832 Wilson Ave.

ARTHUR M. VINEBERG, M.D., C.M., M.Sc., Ph.D., F.A.C.S.
Lecturer in Surgery
Royal Victoria Hospital
1390 Sherbrooke St. W.

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PHILIP F. VINEBERG, B.C.L., M.A.
Assistant Professor in the School of Commerce and Lecturer in Law
637 Murray Hill, Westmount

R. PERCY VIVIAN, M.D. (Tor.)
Strathcona Professor of Health and Social Medicine, Chairman of the Department, and Director of the Health and Social Medicine Building
490 Pine Ave. W.
Apt. 204, 3555 Atwater Ave.

THELMA WAGNER, B.Sc., M.A. (New York)
Assistant Professor of Physical Education in the Department of Athletics, Physical Education, and Recreation *Royal Victoria College*
3440 Shuter St.

WALLACE FRANCIS WALFORD, D.D.S., F.A.A.D.M.
Assistant Professor of Dentistry
1414 Drummond St.

BRUCE EDWARD WALKER, M.Sc., Ph.D.
Lecturer in Anatomy and Histology *Medical Building*
4020 MacKenzie St.

JOSEPH A. LEO WALKER, B.A., M.D., C.M., F.A.C.S., D.A.B.O.S., F.A.A.O.S., F.R.C.S. (C.)
Lecturer in Surgery *Montreal General Hospital*
1538 Sherbrooke St. W.

MARGARET CORINNE WALKER, B.P.H.E. (Tor.)
Instructor in Athletics *Royal Victoria College*

RALPH S. WALKER, M.A. (Aberdeen and Cantab.)
Molson Professor of English and Chairman of the Department
Arts Building
3582 University St.

DONALD WALLACE, B.A.
Lecturer in English
Arts Building
4646 Roslyn Ave.

GEORGE ARTHUR WALLACE, M.Sc., P.Eng., M.E.I.C., M.A.I.E.E.
Macdonald Professor of Electrical Engineering and Chairman of the Department
Engineering Building
4134 Oxford Ave., N.D.G.

PHILIP RUSSEL WALLACE, M.A., Ph.D. (Tor.)
Professor of Mathematics
Physical Sciences Centre
1235 St. Germain St., St. Laurent

RAPHAEL HERMAN WALLACE, B.Sc. (Dal.), M.Sc., Ph.D.
Associate Professor of Agricultural Bacteriology *Macdonald College*

ALEXANDER BRADFORD MCBAIN WALSH, B.Sc. (Agr.)
Registrar of Macdonald College *Macdonald College*

CAMERON T. WALSH, M.S. (Michigan), B.Sc., D.D.S.
Lecturer in Dentistry
1414 Drummond St.

HENRY HORACE WALSH, B.D. (Gen. Synod), M.A. (King's), S.T.M. (Gen. Th. Sem., N.Y.), Ph.D. (Columbia)
Associate Professor of Church History *Divinity Hall*
5220 Beaconsfield Ave., N.D.G.

CLIFFORD VINCENT WARD, B.A. (Bishop's), M.D., C.M., M.R.C.O.G. (Eng.), F.R.C.S. (C.), F.A.C.S.
Associate Professor of Obstetrics and Gynaecology — *Montreal General Hospital*, Apt. 19, 3480 Cote des Neiges Rd.

D. BRUCE WARD, B.Sc., D.D.S.
Demonstrator in Dentistry — Suite 309, 1414 Drummond St.

RICHARD VANCE WARD, M.D., C.M., F.R.C.P. (C.)
Assistant Professor of Medicine — *Montreal General Hospital*, 1414 Drummond St.

HORACE G. I. WATSON, B.A. (Tor.), M.Sc., Ph.D.
Associate Professor of Physics — *Eaton Electronics Research Laboratory*, 3450 McTavish St.

JACK WAUD, Mus.B.
Secretary of the Faculty of Music and of the Conservatorium of Music — *Conservatorium of Music*, 572 Mercille Ave., St. Lambert

DOUGLAS OLIVER WILLIAM WAUGH, M.D., C.M., M.Sc., Ph.D.
Associate Professor of Pathology — *Pathological Institute*, 4844 Victoria Ave.

JAMES LAWRENCE WEBB, M.Sc., Ph.D.
Demonstrator and Research Associate in Biochemistry — *Biological Building*, 3508 Durocher St.

GEORGE ROGER WEBBER, B.Sc. (Queen's), M.Sc. (McMaster), Ph.D. (M.I.T.)
Research Associate in Geological Sciences — *Physical Sciences Centre*, 7814 Outremont Ave.

GORDON MCKINLEY WEBBER, B.Design (Ill. Inst. Tech.)
Assistant Professor of Architecture — *3484 University St.*, Apt. 101, 1102 Elgin Terrace

DONALD ROBERTSON WEBSTER, O.B.E., B.A., M.D., C.M. (Dal.), M.Sc., Ph.D., F.R.C.S. (C.)
Professor of Surgery — *Royal Victoria Hospital*, 4319 Montrose Ave.

EDWARD CLARK WEBSTER, M.A., Ph.D.
Professor of Psychology, Director of the Applied Psychology Centre, and Building Director of Peterson Hall — *Peterson Hall*, 75 Ballantyne Ave. N., Montreal West

PAUL GREGORY WEIL, B.A. (North Carolina), M.Sc., M.D., C.M., Ph.D.
Lecturer in Medicine — *Royal Victoria Hospital*, 1374 Sherbrooke St. W.

JOHN CATHCART WELDON, B.A., Ph.D.
Associate Professor of Economics and Political Science — *Purvis Hall*, 115 Northview St., Montreal West

JOSEPH WENER, B.Sc., M.D., C.M.
Demonstrator in Medicine and in Clinical Medicine — 1499 Bishop St.

WILLIAM WESTLEY, M.A., Ph.D. (Chicago)
Associate Professor of Sociology — *Arts Building*, 149 Westminster Ave. N., Montreal West

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ORSON SHOREY WHEELER, B.A. (Bishop's), A.R.C.A., S.S.C.
Lecturer in Architecture — *3484 University St.*, 1441 Drummond St.

JAMES M. WHITE, B.E. (Johns Hopkins), M.B.A. (New York)
Associate Professor of Mechanical Engineering — *Engineering Building*, 7 Willowdale Ave., Rosemere

LLOYD KEVERN WHITTEN, B.V.Sc. (Australia)
Assistant Professor of Parasitology — *Macdonald College*, 18 Montée St. Marie, Ste. Anne de Bellevue

FRED WIENER, M.D., C.M.
Lecturer in Health and Social Medicine — 490 Pine Ave. W.

ROBERT M. WIENER, M.S. (Chicago), D.D.S.
Lecturer in Dentistry — Suite 80, 3465 Cote des Neiges Rd.

BLOSSOM WIGDOR, M.A. (Tor.), B.A., Ph.D.
Lecturer in Psychology — *Queen Mary Veterans Hospital*, Apt. 15, 5580 Gatineau Ave.

G. EARLE WIGHT, O.B.E., M.D., C.M.
Lecturer in Medicine — *Montreal General Hospital*, 1538 Sherbrooke St. W.

FREDERICK WILLIAM WIGLESWORTH, M.D. (Man.)
Assistant Professor of Pathology — *Montreal Children's Hospital*, 344 - 41st Ave., Lachine

ARCHIBALD L. WILKIE, B.A. (St. F.X.), M.D., C.M.
Associate Professor of Surgery — *Royal Victoria Hospital*, 1374 Sherbrooke St W.

ROBERT EDWIN WILKINSON, M.A. (Columbia), B.Sc.
Assistant Professor in the Department of Athletics — *Currie Gymnasium*, 56 Montrose Ave., Valois

ROBERT STEWART WILLIS, D.Law (Montpellier), B.A., B.C.L.
Lecturer in Commerce — *Arts Building*, 556 Victoria Ave., Westmount

SAUL WILNER, B.A., M.D., C.M., Dipl. Psychiat.
Lecturer in Psychiatry — *Allan Memorial Institute*, Apt. 7, 5656 Clanranald Ave.

CHARLES LAIRD WILSON, M.D., C.M., F.R.C.S. (C.)
Demonstrator in Surgery — *Montreal General Hospital*, 3465 Cote des Neiges Rd.

CHARLES M. WILSON, B.Sc., M.A. (Virginia), Ph.D. (Harvard)
Associate Professor of Botany and Assistant Warden of Douglas Hall — *Biological Building*

STUART A. WILSON, B.Arch.
Assistant Professor of Architecture — *3484 University St.*, 2282 Belgrave Ave., N.D.G.

VALENTINE WILLIAM GIBSON WILSON, S.M. (M.I.T.), B.Sc.
Associate Professor of Civil Engineering — *Engineering Building*, 227 Strathearn Ave.

CARL ARTHUR WINKLER, O.B.E., M.Sc. (Man.), D.Phil. (Oxon.), Ph.D., F.C.I.C., F.R.S.C.
Otto Maass Professor of Chemistry, Chairman of the Department, and Associate Director of the Physical Sciences Centre — *Chemistry Building*
141 Easton Ave., Montreal West

MARION E. WINTERSON (MRS.)
Demonstrator in Physical and Occupational Therapy
Montreal General Hospital
Apt. 10, 4655 Madison Ave.

ERIC WITTKOWER, M.D. (Berlin), L.R.C.P. & S. (Edin. and Glasgow)
Associate Professor of Psychiatry — *Allan Memorial Institute*
363 Clarke Ave., Westmount

LEAR PETERKIN WOOD, B.Sc.
Assistant Professor of Mathematics — *3425 University St.*
785 - 39th Ave., Lachine

WINONA WOOD, B.A., B.Ed. (Sask.), M.A. (Columbia), Dipl. M.S.P.E.
Assistant Professor in the Department of Athletics, Physical Education, and Recreation — *Royal Victoria College*
Apt. 15, 3520 McTavish St.

DONALD H. WOODHOUSE, M.D. (Western Ont.), F.R.C.P.
Demonstrator in Medicine and in Clinical Medicine
Montreal General Hospital
Room 274, Sun Life Bldg.

HARRY DOUGLAS WOODS, B.A. (U.N.B.), M.A.
Bronfman Professor of Industrial Relations and Director of the Industrial Relations Centre — *Purvis Hall*
30 Easton Ave., Montreal West

FREDERICK MYLES WOOLHOUSE, B.Sc. (Sask.), M.D., C.M., F.R.C.S.(C.)
Lecturer in Surgery — *Montreal General Hospital*
1538 Sherbrooke St. W.

GARNET ALEXANDER WOONTON, M.A. (Western Ont.), F.I.R.E., F.R.S.C.
Macdonald Professor of Physics, Chairman of the Department and Director and Building Director of the Eaton Electronics Research Laboratory
Eaton Electronics Research Laboratory
7400 de Tilley St.

ERNEST MILNE WORDEN, M.D. (Tor.)
Assistant Professor of Paediatrics — 1414 Drummond St.

E. WALTER WORKMAN, M.D., C.M., M.Sc.
Lecturer in Anatomy — 4712 Carlton Ave.

ALEXANDER M. WRIGHT, M.D., C.M.
Hosmer Teaching Fellow in Surgery — 3455 Cote des Neiges Rd.

DAVID MCCORD WRIGHT, LL.B. (Virginia), M.A., Ph.D. (Harvard)
William Dow Professor of Economics and Political Science — *Purvis Hall*
555 Lansdowne Ave.

GEORGE THOMAS FORRESTER WRIGHT
Assistant Superintendent of Buildings and Grounds — *Macdonald College*
Macdonald College

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ISOBEL L. WRIGHT, M.D. (Tor.)
Demonstrator in Paediatrics — *Montreal Children's Hospital*, 1414 Drummond St.

LEEBERT AUGUSTUS WRIGHT, B.Sc.
Demonstrator in Agricultural Chemistry — *Macdonald College*

JIM H. T. WU, B.Sc. (Tsinghua), M.A.Sc. (Tor.)
Assistant Professor of Mechanical Engineering — *Engineering Building*, 4640 Grand Blvd.

LEO YAFFE, M.Sc. (Man.), Ph.D.
Associate Professor of Chemistry — *Chemistry Building*, 4447 Harvard Ave.

JOSHUA T. YAMADA, M.A. (Tor.)
Lecturer in Mathematics — *3425 University St.*, 34 Thornhill Ave., Westmount

HAVELOCK HOWARD YATES, B.Sc., Ph.D.
Associate Professor of Metallurgical Engineering — *Physical Sciences Centre*, 64 Somerville Ave., Westmount

RAYMOND YONG, B.A. (Washington and Jefferson), Sc.B. in Civil Eng. (Massachusetts Inst. of Technology), M.Sc. in C.E. (Purdue)
Lecturer in Civil Engineering — *Engineering Building*, 550 Milton St.

ARTHUR WILSON YOUNG, M.D., C.M., F.R.C.P. (C.)
Assistant Professor of Neurology — *Montreal Neurological Institute*, 1390 Sherbrooke St. W.

JOHN CHARLES GORDON YOUNG, B.Sc., M.D., C.M.
Demonstrator in Medicine — 3111 Westmount Blvd.

JOHN ERNEST MCKIM YOUNG, B.A. (McMaster), M.E. (Sask.), Ph.D. (Tor.)
Associate Professor of Education — *Macdonald College*

MATTHEW H. VINCENT YOUNG, B.A., M.D., C.M., Dipl. Obst. and Gyn., M.R.C.O.G. (Eng.), F.R.C.S. (C.)
Demonstrator in Obstetrics and Gynaecology — *Royal Victoria Hospital*, 1509 Sherbrooke St. W.

EVA RUDER YOUNGE, B.A. (Alta.), M.A.
Associate Professor in the School of Social Work — *3600 University St.*, Apt. 35, 406 Pine Ave. W.

BOGDAN ZABORSKI, Ph.D. (Warsaw), Dozent (Cracow)
Associate Professor of Geography — *539 Pine Ave. W.*, 3436 Melrose Ave.

PEREZ ZAGORIN, A.B. (Chicago), M.A., Ph.D. (Harvard)
Assistant Professor of History — *Arts Building*, 496 Lansdowne Ave.

HANS JULIUS ZASSENHAUS, M.A. (Glasgow), Dr. Rer. Nat., Dr. Habil. (Hamburg)
Peter Redpath Professor of Pure Mathematics — *3425 University St.*, 4580 Sir George Simpson Ave., Lachine

A BRIEF HISTORY OF THE UNIVERSITY

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A BRIEF HISTORY OF THE UNIVERSITY

In 1813 the Hon. James McGill, a leading merchant and prominent citizen of Montreal, died and left in his will a property of forty-six acres and a sum of £10,000 to the already existing Royal Institution for the Advancement of Learning upon condition that the latter erected "upon the said tract or parcel of land, an University or College, for the purposes of education and the advancement of learning in this Province"; and further upon condition that "one of the Colleges to be comprised in the said University shall be named and perpetually be known and distinguished by the appellation of 'McGill College'."

Owing to a lack of funds and persistent opposition the complete University, which had been planned by the Royal Institution, was not built, but after years of litigation and effort, the University of McGill College was opened in 1829 with what remained of James McGill's legacy as its endowment; and teaching then started in the Faculties of Medicine and Arts. The Medical Faculty grew steadily, but the Faculty of Arts had a most delicate infancy, and by the middle of the century was still scarcely alive. In 1852 an amended Charter was secured and a new era of progress and success began with the appointment in 1855 of Sir William Dawson as Principal, a position which he held for thirty-eight years.

Since 1855 the University has grown vigorously, dividing itself into further faculties. In 1899 the Royal Victoria College was opened, a gift of Baron Strathcona, to provide separate teaching and residential facilities for women students. Gradually, however, classes for men and women were merged, and now the University is almost completely coeducational. In 1907 Macdonald College was established at Ste. Anne de Bellevue, as a residential college for Agriculture, Household Science, and the School for Teachers. This general development was greatly facilitated by the generosity of Sir William Macdonald, whose gifts to the University included a Physics Building, a Chemistry and Mining Building, and a new Engineering Building, in addition to the college named after him.

The University had about a thousand students at the beginning of the present century. Before the First World War the number had approximately doubled and after the Second World War it rose rapidly until it reached over eight thousand in the 1948-49 session. At present about seven thousand students are taking regular university courses. During this half-century benefactors, both public and private, have brought the total endowments to more than $50,000,000. New buildings have been erected or acquired to provide the undergraduate and research facilities needed by the increased student body. These include Douglas Hall and Wilson Hall, residences for men, and a large extension of the

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Royal Victoria College for women. Since 1945 the following buildings have been added: Purvis Hall for the School of Commerce, Chancellor Day Hall for the Faculty of Law, new quarters for the Faculty of Music, the Donner Building for medical research, the Radiation Laboratory and Cyclotron, and the Eaton Electronics Building. A new Physical Sciences Centre was opened in 1951 and a large extension of the Redpath Library was completed in 1953. The Sir Arthur Currie Memorial Gymnasium and Armoury, built in 1939, has been extended to include a swimming pool which was opened in 1950 and a Winter Stadium was added in 1956. A similar growth has been maintained in the buildings and equipment of Macdonald College.

At the present time further expansions are being planned to accommodate the greatly increased number of students the University will have in a few years' time.

GOVERNMENT OF THE UNIVERSITY

McGill University is a Corporation created by a Royal Charter granted by the Crown of the United Kingdom, a general supervisory power being retained by the Crown and exercised through the Governor General as *Visitor*.

The *Governors* of the University constitute the Royal Institution for the Advancement of Learning, a corporation existing under the laws of the Province of Quebec, part of the official organization of the Province, but completely self-governing. In them is vested the management of finances, the appointment of professors, and other important duties. Three of the Governors are elected by the members of the Graduates' Society and other appointments are made by the nomination of the remaining members with the approval of the Visitor. The President of the Board of Governors is, *ex officio*, *Chancellor* of the University.

The *Principal* is the academic head and chief administrative officer. He is appointed by the Board of Governors (of which body he is a member). He also holds the office of Vice-Chancellor of the University.

Senate consists of the Chancellor, the Principal, the Deans of the Faculties, the Warden of the Royal Victoria College, the Director of the School for Teachers, the Director of University Extension, and the four Group Chairmen of the Faculty of Arts and Science, all *ex officio;* five Governors elected by the Board; and eight professors elected by the various faculties. The Principal is Chairman of Senate, which is the highest academic authority of the University and has control over admission, courses of study, discipline, and degrees.

The carrying out of the regulations of Senate along with primary responsibility for the conduct of the educational work of the University, is entrusted to the several Faculties and Schools.

INCORPORATED AND AFFILIATED COLLEGES

INCORPORATED COLLEGES

Macdonald College is situated at Ste. Anne de Bellevue, about twenty-five miles from Montreal. It consists of the Faculty of Agriculture, the School of Household Science, and the Institute of Education. All courses leading to the Bachelor's and Master's degrees are under the control of the Senate of McGill University; all the short term courses in agriculture, as well as the shorter courses in domestic science, are under the direction of the Faculty of Agriculture; and those for diplomas to teach in the Province of Quebec are prescribed and regulated by the Department of Education. (*For further particulars, see pages 4806 to 4835.*)

The Royal Victoria College is the Women's College of McGill University. (*For further particulars, see pages 307 to 310.*)

AFFILIATED THEOLOGICAL COLLEGES

The Montreal Diocesan Theological College—Principal, Rev. R. H. L. Slater, M.A., Ph.D., 3473 University Street.

The United Theological College of Montreal—Principal, Rev. George B. Caird, M.A., D.Phil., 3506 University Street.

NOTE: The above two Colleges train students for the Ministry and grant certificates for ordination, but in 1948 they remitted their degree-granting powers to the University, which now confers degrees in Divinity upon properly qualified students. (*See page 2305.*)

The Presbyterian College of Montreal—Principal, Rev. Robert Lennox, M.A., Th.B., D.D., 3485 McTavish Street.

For Calendars and all necessary information, apply to the Principals of the Colleges.

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INSTITUTES ATTACHED TO McGILL UNIVERSITY

The Institutes and similar groups listed below carry out research in a number of specialized fields. In most of them facilities are available for qualified students who wish to take higher degrees.

INSTITUTE OF INTERNATIONAL AIR LAW

An academic organization for graduate study and independent research in International Air Law, open only to those already holding law degrees or to members of the Bar. Students in the Institute may proceed to the degree of LL.M. **Director:** Professor Eugène Pépin.

ALLAN MEMORIAL INSTITUTE OF PSYCHIATRY

A Psychiatric Institute for teaching, research, and treatment. McGill University undertakes responsibility for the training and teaching facilities, and the Royal Victoria Hospital for the clinical work. Teaching covers both undergraduate instruction and advanced postgraduate training. **Director:** Professor D. Ewen Cameron.

ARCTIC INSTITUTE OF NORTH AMERICA

An international organization, the Montreal office (and headquarters) of which has since 1945 occupied space provided by McGill University. It supports scientific research in northern North America, and maintains a reference library, a map collection, and a small museum. It co-operates with the University in the McGill-Arctic Institute-Carnegie programme which assists graduate students in northern studies. **Director,** A. T. Belcher.

INDUSTRIAL RELATIONS CENTRE

The Industrial Relations Centre is an integral part of the School of Commerce and was set up to promote research and to spread knowledge in the field of industrial relations. Corporations taking membership in the Centre enjoy the privileges of conferences and discussions and the use of the library and reference services. An active programme is carried on particularly during the winter months. **Director:** Professor H. D. Woods.

INSTITUTE OF ISLAMIC STUDIES

A co-operative venture, gathering both staff and students from the Orient and the Occident, to interpret Islam as a living social force and to conduct joint research on its modern developments. Qualified students may proceed to the M.A. (or to the S.T.M.). **Director:** Professor Wilfred Cantwell Smith.

MONTREAL NEUROLOGICAL INSTITUTE

This includes a hospital for the treatment of diseases of the nervous system and laboratories for the study of basic and applied science in the general field of Neurology. The Institute houses the University Department of Neurology and Neurosurgery, and undergraduate and graduate teaching is carried out as well as research. **Director:** Professor Wilder Penfield.

INSTITUTE OF PARASITOLOGY

A co-operative venture between the National Research Council and the University for the study of Parasitology in man and animals. It also co-operates with public authorities in the practical applications of Parasitology. It accepts qualified students who wish to proceed to the M.Sc. or the Ph.D. degree. The Institute is housed at Macdonald College, Ste. Anne de Bellevue, near Montreal. **Director:** Professor T. W. M. Cameron.

STAFF DEVELOPMENT INSTITUTES

The Applied Psychology Centre of the Department of Psychology sponsors a series of intensive training courses for management personnel. These include: (a) A two week Personnal Appraisal Institute for employment department staff; (b) A one week Workshop in Discussion Leadership Techniques for training department staff; (c) A one week Job Evaluation Institute for industrial engineers; (d) A three week human relations course in Administration and Management Problems for senior executives. Particulars may be secured from the Director, Professor Edward C. Webster.

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THE UNIVERSITY LIBRARY

RICHARD PENNINGTON, B.A., Lib. Dip. (London), *University Librarian.*

The University Library, which is under the general management of a Committee of Senate, includes the Redpath Library and various Faculty and Departmental libraries in other buildings.

The several libraries of the University now contain over 650,000 volumes and 50,000 pamphlets and receive over 3,000 periodicals, Government publications, and transactions of various literary and scientific societies.

The University Library is rich in early printed books, in Canadiana, and in rare pamphlets of the sixteenth to eighteenth centuries. It has special collections of David Hume, Rousseau, Rilke, Blake, Napoleon, Stephen Leacock, and Rudyard Kipling; in the Stearn Library it has a collection, both of books and puppets, illustrating the history of the marionette theatre of all nations and in the William Colgate Printing Collection a library devoted to typography. The Osler Library, devoted to the history of science from classical times, is famous also for its Sir Thomas Browne collection.

The Blackader Library of Architecture has been established in honour of Captain Gordon Home Blackader, B.Arch. The Wood Library of Ornithology was presented by Colonel Casey A. Wood, M.D., LL.D., as a special research collection and reference library. The Blacker Library of Zoology, presented by Robert Roe Blacker and Nellie Canfield Blacker, is a comprehensive reference library on this special subject. It is supplemented by the Lyman Collection of books on Entomology. The Dinah Lauterman Library of Art was established in 1946. The Faculty of Medicine (including the Bibliotheca Osleriana), the Faculty of Engineering, the Faculty of Divinity, the School of Social Work, the School for Graduate Nurses, and the Royal Victoria College maintain libraries in their respective buildings. The Baillie Library of Chemistry, the Physics Library, Mining, Metallurgy, and Geology libraries are housed in the Physical Sciences Centre, and there is a departmental collection in the Department of Botany. The Library of the School of Commerce, which includes a section on Industrial Relations, is in Purvis Hall. The Faculty of Law Library is in Chancellor Day Hall.

Students will find in the Redpath Library building the Undergraduate Library with seating for 352 readers and with a specially selected working collection of about 40,000 volumes. Third and Fourth year Honours students may on application obtain a permit for working in the Stack. Students writing a thesis are advised to consult the University Librarian early in their work as to books they will need which are not yet in the Library. There is also in the Redpath Library a Poetry Records Room.

With the Library is affiliated the University Book Club, which supplies its members with recent publications and makes an annual contribution of books to the Library.

The Library exhibits, from time to time, displays illustrating the subjects of the University curriculum, with special reference to art, bibliography, Canadian history, and the marionette theatre.

THE UNIVERSITY MUSEUMS

1. PETER REDPATH MUSEUM

The Peter Redpath Museum, a dignified building in the Neo-Greek style situated between the University Library and the Arts Building, was erected by the donor whose name it bears and was handed over to the University in 1882, the architects being Hutchison and Steele. It is the only building in the University designed solely for museum purposes. It contains, on three floors, a great variety of museum material:

Top floor—Zoology: Vertebrates and invertebrates, including the Carpenter Collection of Mollusca.

Second floor—Geology: Introductory exhibits; Dawson Collection of Palaeontology; Ferrier Collection of minerals; and a condensed exhibition of Economic Geology.

Ground floor—Ethnology: Synoptic exhibit of primitive native cultures from North America and Africa; Lyman Entomological Collection.

Director, Mrs. Alice Johannsen Turnham; *Curator of Zoology*, J. D. Cleghorn; *Curator of Entomology*, G. M. Moore; *Curator of Geology*, Mrs. J. S. Stevenson; *Malacologist*, Vincent Conde; *Curator of Education*, H. G. Ferrabee; *Cataloguer, Notman Collection*, Barbara Chadwick.

2. McCORD NATIONAL MUSEUM

The McCord National Museum has been recently moved to 3507 Drummond Street where it is operated as a research centre for students and specialists in Canadian history. *Acting Curator:* G. R. Lowther; *Historian:* Mrs. Isabel Dobell.

Inquiries should be addressed to the Historian.

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3. ETHNOLOGICAL MUSEUM

Selections from this Museum, formerly housed in the Medical Building, are now on display as follows:

1. Synoptic exhibits: Eskimo, North American Indian, and African material: Redpath Museum.
2. Mediterranean Culture and Biblical World: Divinity Hall, 3520 University Street.

The remainder of the Ethnological Collection is in storage, pending provision of suitable quarters which will eventually house the Ethnological and McCord Museums under a single roof.

In addition to the above there are other collections and exhibits of a specialized nature, ordinarily open only to students but to which access may be gained by application to the Curator concerned. These include the Anatomical, Medical, and Pathological Museums, the Museum of Hygiene, the Rutherford Collection of Experimental Physics, and the Botanical, Zoological, and Architectural collections. At Macdonald College there is a teaching collection containing an herbarium, a collection of insects, and other exhibits related to Canadian agriculture.

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MONTREAL, CANADA

GENERAL INFORMATION

1957-58

ADMISSION TO THE UNIVERSITY

NTRANCE REQUIREMENTS

The entrance requirements of the various faculties and schools of the University are given in the General Announcement, and in the separate announcements of the faculties and schools. These announcements may be obtained from the Registrar's Office.

PPLICATION FORMS

Application forms for admission to the faculties of Arts and Science (including the School of Commerce), Engineering, Medicine, Dentistry, and Divinity may be obtained from the Registrar's Office. Applications for admission to other faculties and schools should be made to the Deans of the faculties or the Directors of the schools concerned. All application forms give details of the certificates and records applicants must submit.

APPLICATION FOR RESIDENCE

Students who wish to apply for residential accommodation must do so on special forms. These may be obtained from the Warden of the Residence concerned or from the Registrar's Office.

ADMISSION TO THE UNIVERSITY

The admissions policy of the University is definitely selective and no guarantee can be given that a student who has complied with the minimum entrance requirements will be admitted. Students, therefore, should never come to the University until they have received official acceptance of their applications.

INQUIRIES

The Registrar's Office will be pleased to answer inquiries concerning the University and to give advice to anyone who contemplates applying for admission.

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FEES

The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require.

Fees are not refundable, except under special conditions as described in the regulations concerning remission of fees (see page 305).

I. UNIVERSITY FEES

FULL TIME REGULAR STUDENTS

(a) These fees include all the regular charges of the University fo registration, tuition, laboratories, libraries, graduation, health se vice, physical education, sports, games and Students' Society Fee

Arts	$450.0
Commerce	450.0
Dentistry (laboratory equipment not included)	551.5
Divinity (except regular candidates for ordination)	400.0
Education (3rd and 4th years B.Ed. and B.Ed. (P.E.))	450.0
Engineering and Architecture (all years)	551.0
Nursing (Degree and Diploma Courses)	450.0
Law (First, Second, and Third years)	450.0
Law (Fourth year)	393.0
Library School (includes library visits)	450.0
Medicine	650.0
Music	365.00 to 550.0
Physical and Occupational Therapy	450.0
Science	450.0

(b) The following inclusive fees provide for only limited participation physical education and sports, and do not include admission to game

Graduate Studies (Excluding M.L.S.)	400.
International Air Law	400.
Social Work	400.
Master of Library Science—includes library visits	500.

CONDITIONED STUDENTS

Special fee for an additional course repeated or substituted by conditioned students (one full course or two half courses)	$ 10.

LIMITED UNDERGRADUATES IN THE FACULTY OF ARTS AND SCIENCE

Per course	$100.
Per half course	50.

PARTIAL STUDENTS

	Half Courses	Full Cours
Arts, Science, and Commerce, per course	$50.00	$100.
Engineering, per hour of instruction per week, per term.	17.00	17.

Information concerning the fees for partial students in other courses may be obtained from the Chief Accountant.

The maximum fee charged for courses taken by partial students will not exceed the published fee for full time regular students, but in all other cases, partial students are subject to the following additional fees:

(a) If taking three or more courses—		
Athletics	$15.00	
Health Service	7.00	
Students' Society	*15.00	$37.00
*($16.50 in Dentistry, $17.00 in Engineering, $18.00 in Law, and $19.00 in Medicine)		
(b) If taking less than three courses—		
Grounds (use of Rinks and Tennis Courts during session)	$ 5.00	
McGill Daily and McGill Union	5.00	$10.00
or, if desiring full Athletic and Health Service privileges—		
Athletics	$15.00	
Health Service	7.00	
McGill Daily and McGill Union	5.00	$27.00

PAYMENTS BY INSTALMENTS

Fees, including board and residence, may be paid in two instalments, one at the beginning of the session and one on the 15th of January following. For this privilege the additional fee (payable $2.50 with each instalment) is $5.00

In special cases of hardship, application may be made to the Chief Accountant for more extended terms of payment.

II. SPECIAL FEES AND PENALTIES

Late registration (first week) extra	$ 5.00
Late registration (second week) extra	10.00
Late payment fee (after specified date)	2.00
Fine for late medical examination (*see pages 311 and 312*)	5.00
Graduation *in absentia*	10.00
Duplicate Diploma	10.00
Certified copy of student's record	1.00
Additional copy (at same time)	.50
Duplicated copies of student's record (12 copies)	2.00
Re-reading examination paper	10.00
Supplemental examinations, each paper	10.00
Rental of microscope (*per term*)	7.50
Rental of microscope (*for the session*)	12.00

McGill graduates and graduates of other Universities may use the University Library on payment of an annual fee of $5.00.

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III. STUDENTS' SOCIETY FEES

University fees, listed on page 302, include an annual fee of $15.00 ($16.50 in Dentistry, $17.00 in Engineering, $18.00 in Law, and $19.00 in Medicine) for the support of student organizations. Partial students taking three or more full courses are required to pay an additional fee, as set forth on page 303. The Dentistry fee includes $1.50 for the Dental Review; Medical and Law fees include $2.00 for the Medical and Law Journal respectively.

The men's fee is distributed as follows: McGill Union $3.50; McGill Daily $1.50; Students' Executive Council $9.00; Undergraduate Society $1.00. In Law the Undergraduate Society receives $2.00; in Medicine and Engineering $3.00.

The women's fee is distributed as follows: Women's Union $3.50; McGill Daily $1.50; Students' Executive Council $9.00; Undergraduate Society $1.00.

The fee of students in the Faculty of Graduate Studies is distributed as follows: McGill Union or Women's Union $3.50; McGill Daily $1.50; Postgraduate Students' Society $2.00.

IV. ATHLETICS, PHYSICAL EDUCATION, AND RECREATION

Free use of the gymnasium and swimming pool, rinks, tennis courts, playing fields, etc., is included in the University fees listed under section (a) on page 302, and $15.00 of the fees paid by regular undergraduates is allocated to the Department of Athletics, Physical Education, and Recreation to support its programme. Students' season tickets for the home games of the senior football team cost $1.50, and students' tickets for the home games of the senior hockey team cost 25 cents each. All other home games are free to students.

REGULATIONS FOR PAYMENT OF FEES

1. Fees are due and payable at the Accounting Office immediately after registration; exact dates are shown in the announcements of various Faculties and Schools. A late fee of $2.00 is charged for payment after the specified dates, and no additional days of grace are allowed.

2. The university does not issue bills for fees. Each student is required, at the time of registration, to complete a fee account giving full details of his fees for the session. To ensure identification, students or parents should enclose the fee account when paying fees.

3. Fees may be paid in two instalments, one at the beginning of the session, and one on January 15th following. In such cases the instalment fee of $5.00 is charged.

1st Instalment

One half of the total fees plus $2.50 instalment fee. Deduct deposits already paid.

2nd Instalment

Balance of total fees plus $2.50 instalment fee.

4. Students registering late pay their fees at the time of registration, failing which they become subject to the late fee and the provisions of the following paragraph:

As soon as possible after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans will thereupon suspend them from attendance until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

5. Further details concerning fees in the Faculty of Graduate Studies and Research are given in the announcement of that Faculty.

REGULATIONS CONCERNING REMISSION OF FEES TO STUDENTS WHO LEAVE THE UNIVERSITY DURING THE COURSE OF THE ACADEMIC YEAR

1. Students withdrawing from the University must cancel their registration at the Registrar's Office.

2. In the case of students who, in spite of the fact that they leave the University before the end of the academic year, receive full credit for the year towards their degree, there shall be no refund of fees.

3. In the case of students who leave during the academic year and do not receive credit beyond the period of their attendance, the fees shall be remitted on the following basis:

(a) In those Faculties where the academic year is divided into two terms, half of the annual fees shall be remitted to a student who leaves prior to the beginning of the second term.

(b) In those Faculties where the year is divided into three terms, one-third of the fees shall be returned for each term that begins after the departure of the student.

4. No fees shall be refunded for any term during which the student has attended classes, even though he leaves before the term has finished.

5. Residence fees are payable for the full academic year and will not be refunded, except in special circumstances.

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EXPENSES

It will be seen that each full time regular student pays annually an inclusive University Fee (see page 302). There are no other regular fees and the only extras are for late registration, for graduation *in absentia*, etc., as listed above. Consequently the expenses of a student may be estimated by adding this fee and the cost of board and lodging (*see pages 306, 307, 309, 310*). Books are necessarily a variable expense but probably $60 a year would be their average cost in Arts and Science. Personal expenditure upon clothes, amusements, etc., is still more variable and no useful estimate is possible.

PART-TIME EMPLOYMENT

Inquiries regarding placement, part-time work, or summer employment should be directed to the University Placement Service. However, students taking a regular degree course generally have insufficient leisure to make heavy part-time work during the term advisable, and they are recommended not to rely upon earning any money while actually at college.

BOARD AND RESIDENCE

The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require.

I. FOR MEN

Application submitted after July 1st for residence in Douglas Hall or Wilson Hall will not normally be considered.

DOUGLAS HALL OF RESIDENCE

Douglas Hall was opened in September 1937. It is built on the staircase plan, each student normally having his own study-bedroom and sharing a sitting room with two other men, the three study-bedrooms and the sitting room forming a self-contained and separate suite. The residence has accommodation for approximately 150 students. Meals, under the supervision of a qualified dietitian, are served in the attractive refectory and residents have in addition the use of adequate common rooms, play rooms, etc.

Bedding and towels are provided.

A House Fee of $6.00 is collected by the University on behalf of the Resident Students' Society, and is payable with the Board and Residence fees.

NORMAL SESSIONAL FEES FOR BOARD AND RESIDENCE

Engineering and Architecture:	
First year	$685.00
Subsequent years	650.00
Arts, Science, Commerce, Law	685.00
Medicine and Dentistry (Fourth year)	720.00
Medicine and Dentistry (lower years)	750.00

Students sharing a double study-bedroom will be allowed a rebate of $40.00 on the above fees.

WILSON MEMORIAL HALL

Wilson Memorial Hall, acquired in 1945, has accommodation for approximately seventy students, most of whom share a double room. Otherwise the facilities of dining room and common rooms are similar to those at Douglas Hall.

A House Fee of $6.00 is collected by the University on behalf of the Resident Students' Society, and is payable with the Board and Residence fees.

NORMAL SESSIONAL FEES FOR BOARD AND RESIDENCE

Engineering and Architecture (upper years)	$620.00
Arts, Science, Commerce, Law, and First year Engineering	650.00

Students sharing a double room will be allowed a rebate of $40.00 on the normal fee. A further rebate of $20.00 will be allowed in the case of a few of the less favourably situated rooms.

One half of the fee is payable at the beginning of the session, and the balance on January 15th.

Students who are in residence for any additional period are charged extra at the rate of $3.50 per day.

Owing to limited accommodation, the normal time of residence in either Hall is restricted to four years, or the time required to obtain one McGill degree, whichever is shorter.

Any resident leaving the halls during the term will be held responsible for his room, until a replacement is found.

Application forms for both residences may be obtained from the Warden's Office, Douglas Hall of Residence.

LODGINGS

The University has a register of lodgings which have been inspected and approved. For information about these rooms students should apply in person to the Rooms Registry in the Union during September. The Registry gives information to those who come to its office but does not itself reserve lodgings and it cannot answer correspondence.

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The cost of board and lodging in approved rooms varies from $70 to $85 per month. Separately, board costs from $65, and a room from $35, upwards per month.

Board is furnished in the McGill Union at low rates.

Board and lodging for men may also be obtained in the Diocesan College and the Presbyterian College, which are affiliated with the University.

II. FOR WOMEN

THE ROYAL VICTORIA COLLEGE

The main building of the Royal Victoria College was erected in 1899 under the terms of the endowment created by the Rt. Hon. Baron Strathcona and Mount Royal for the education of women at McGill University. A west wing was added in 1930-31 and an east wing in 1948-49. In all, the College provides residence accommodation for 300 students. McLennan Hall, 3480 Ontario Avenue, formerly the home of Miss Isabella C. McLennan and donated by her to the University, provides additional accommodation for 26 students. Breakfast is served at the Hall and other meals at the Royal Victoria College.

All women undergraduates registered at McGill University are automatically members of the Royal Victoria College, whether in residence or not, and are required by the University to complete the registration forms of the Royal Victoria College.

The activities of all women students centre in the College, which contains a separate library, lounges, cafeteria, gymnasium facilities, health offices, infirmary, and accommodation for the Women's Union, as well as residential quarters and the Warden's office.

The Warden has general supervision over all the academic activities of the women students. Under the University statutes, she is responsible for "the preservation everywhere of the good character and good name of the College." To this end she has jurisdiction over all women's extra-curricular activities.

APPLICATION FOR RESIDENCE

(a) Out-of-Town Applicants:

The Royal Victoria College has the responsibility for residence for all women undergraduates whose homes are not in Montreal. Only in exceptional cases may an undergraduate who is not residing with her parents or guardian live out of residence, and then only with the Warden's written approval.

All women students whose homes are not in Montreal must make application for residence in the College, as well as for a Faculty or School, before their academic applications can be considered.

Residential application forms may be secured either from the Registrar's Office of the University or from the College, and when completed should be addressed to The Warden, Royal Victoria College, McGill University, Montreal. It is to the candidate's advantage to make application early, **preferably by May 31st.** (Students should not await the results of their matriculation examination before applying.)

Before a student can be officially accepted for residence, she must fulfil all the entrance requirements of McGill University, be acceptable for a full course leading to a degree or diploma, and comply with the health regulations (*see paragraph on Health, page 310*).

Admission is based on scholarship, character, health, and general promise.

(b) Montreal Applicants:

It is expected that there will be limited accommodation in the College, during the 1957-58 session, for Montreal students who may wish to live in residence during some part of their academic career. Information regarding this may be obtained from the Warden's Office of the Royal Victoria College.

OPENING AND CLOSING OF RESIDENCES

Registration dates for women students in Arts, Science and Commerce are as follows:

First year—Tuesday, September 17th.

Upper years—Tuesday and Wednesday, September 24th and 25th.

Residences will open for *First year students* on Sunday, September 15th when the mid-day meal will be the first to be served; and for *upper years* on Monday, September 23rd.

Students cannot enter residence before the dates specified.

All students except seniors are expected to leave in May within 48 hours of their last examination; seniors, within 48 hours after Convocation.

ROOMS AND FURNISHINGS

In the Royal Victoria College there are 274 single and 15 double rooms. They are furnished with the following: bed, pillow, bureau, desk, bookcase, desk chair, waste-basket, study lamp. Blankets (2), sheets, pillow cases, bath towels, and face towels are provided. Students should supply their own bed covering and bureau scarf.

At McLennan Hall the rooms are large and accommodate two or three students each. Furnishings are similar to those described for the Royal Victoria College

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RATES

The charge for board and residence covering the period of the University Session (ARTS AND SCIENCE), *exclusive of the Christmas holiday*, is as follows:

Single room	$685.00
Double room (15 only)	660.00

Students in faculties with longer sessions are charged extra according to the length of the session.

School of Physical and Occupational Therapy:

1st year—		Upper years—	
Single room	$685.00	Single room	$720.00
Double room	660.00	Double room	695.00

School of Physical Education:

3rd and 4th years—		2nd year—	
Single room	$685.00	Single room	$720.00
Double room	660.00	Double room	695.00

Students who are in residence for any additional period for purposes of instruction, practice teaching, or examinations are charged at the rate of $3.50 per day.

A House Fee of $10.00 is collected by the University on behalf of the Resident Students' Society, and is payable with the Board and Residence fees. This amount includes $2.00 key deposit which is refunded at the end of the session.

HEALTH

The health service for both resident and non-resident students is part of the University Health Service. Dr. M. Dorothea Mellor, of the Health Service, is assisted by resident nurses.

No student who has an infectious illness or who comes from a house in which there has been an infectious illness may enter or return to the College unless the regulations of the Provincial Department of Health are observed. In all such cases the Warden must be notified and official consent secured. All students entering the University for the first time are required according to Provincial regulations to present a certificate or other satisfactory evidence of successful vaccination within seven years, or of insusceptibility to vaccine within five years.

RESIDENCE FOR GRADUATE WOMEN STUDENTS (McLennan Hall).

Application for residence from graduate women students will be considered should there be vacancies after all undergraduates have been accommodated. The following rates are for McLennan Hall and cover

room and breakfast. Additional meals may be obtained at the Royal Victoria College Cafeteria at the regular prices.

RATES (*Exclusive of the Christmas holiday*)

Course	Period	Single	Multiple
Dentistry 1, 2, 3	Registration—End of Session	$535	$440
Dentistry 4	Registration—Convocation	500	415
Law 1, 2, 4	Registration—End of Session	420	350
Law 3	Registration—Convocation	460	380
Library School	Registration—Convocation	480	400
Medicine 1, 2, 3	Registration—End of Session	535	440
Medicine 4	Registration—Convocation	500	415
Social Work	Registration—End of Second Term	505	420
Graduate Faculty	Registration—End of the Examination period.	440	365

Additional periods will be charged at the following daily rates: Single, $2.00; Multiple, $1.65.

HEALTH SERVICE (MEN AND WOMEN)

The object of the University Health Service is to ensure that every student enrolled at McGill University shall be enabled to obtain the maximum protection for the development and maintenance of health at reasonable cost, during the University sessions.

The facilities of the Health Service provide for the early discovery of any defects of health and direct the student to competent treatment for any serious defect which may be found. The personnel of the Health Service have all been chosen for their ability to give competent and sympathetic service.

The Health Service provides treatment for minor illnesses or accidents.

It is not the function of the Health Service to undertake the care of serious cases beyond the initial diagnosis and emergency treatment. The patient will then be referred to the physician or surgeon of his choice or to the public service of designated hospitals.

The families of out-of-town students will be notified of any serious illness, and the action of the Health Service will be guided by their wishes or the advice of their family doctor.

Students entering the University are presumed to be in good health. If they are not, a statement to the contrary should be furnished to the Health Service before registration in the University is completed.

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All students entering the University for the first time are required to present a certificate, or other satisfactory evidence, of successful vaccination against smallpox. Students should be vaccinated before they come to the University. If they have not complied with this Government regulation, they will be vaccinated at the University and a fee of $5.00 will be charged. Failure to be vaccinated before a certain date in the term may result in the imposition of a fine of an additional $5.00.

The University is not responsible for damages of any kind resulting from accidents or athletic injuries which may occur, nor for the medical or hospital expenses incurred by any person suffering an accident or athletic injury. In the case of injuries which occur during intercollegiate or intramural competition in athletics or in preparation therefor, the Health Service will render treatment, including hospitalization, if necessary, but any hospital expense in connection therewith shall be limited to the same maximum amount and conditions as in the case of hospitalization for illness. If circumstances appear to justify such action, the Director of the Department of Athletics, Physical Education, and Recreation may authorize additional services or contributions towards such cost.

UNIVERSITY MEDICAL EXAMINATIONS

The University requires all students (whether regular, limited or partial students, and whether undergraduate or graduate students) to present themselves for examination by the University Health Service as follows:

(i) In his, or her, first year, as a member of any Faculty, every student must present himself, or herself, for general clinical examination and routine laboratory tests. Examinations are given by appointment with the Health Service. Students who fail to comply with this requirement by November 1st in any academic year will be subject to a fine of five dollars, and students who fail to comply with it by November 15th will be suspended from membership of the University. Students should note that, in cases in which they have met this requirement in one Faculty and have subsequently entered another Faculty, they must present themselves for re-examination as members of the Faculty to which they have transferred.

(ii) In each academic year during their membership of the University, other students must present themselves, before November 1st, for a chest x-ray examination. Examinations are given by appointment with the Health Service. Students who fail to comply with this requirement by November 15th, in any academic year, will be subject to a fine of five dollars; and students who fail to comply with it by December 1st will be suspended from membership of the University.

Participation in athletics is conditional upon the results of these examinations.

Provision is made, during the session, for the re-examination of any student who may seem to require it.

Consultative service for all students is available at the various centres of the University Health Service. These centres are located for men on the McGill Campus at 486 Pine Avenue West; for women at the Royal Victoria College; for Macdonald College at the Infirmary.

This service is optional on the part of the student. Any services obtained by the student from a private physician are the student's responsibility.

A limited number of house visits by a physician or nurse of the Health Service is undertaken as necessary for those living away from home and confined to bed.

A student who has received medical attention for an illness or accident must be declared fit by the Health Service before he may resume participation in classes or athletics.

The consultative service is included in the University Health Service fee.

In case of hospitalization when obtained through the University Health Service, payment will be made for one-half of all public ward rates in a designated general hospital up to a maximum of $125.00 per student in any one session of the University.

This contribution is not applicable to hospital expenses for an illness or other condition which was known or ascertained at the time of admission.

Further detailed information will be furnished each student at the time of registration.

PARKING ON UNIVERSITY GROUNDS

The University does not permit students to park automobiles or motorcycles anywhere on the Montreal campus except in certain areas which may be allotted for the purpose and then only after a permit has been obtained from the Students' Executive Council.

Parking at Macdonald College is subject to restrictions. Further information may be obtained by applying to the office of the Vice-Principal of the College.

SPORTS FOR MEN

There is intercollegiate competition in approximately twenty different sports, including football, hockey, track, basketball, skiing, swimming, tennis, boxing, wrestling, fencing, and golf, and, in addition, there is a wide programme of intra-mural competition in various sports. The Sir Arthur Currie Memorial Gymnasium and Swimming Pool provide accommodation for many indoor activities, while Mount Royal in Montreal and the

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Laurentian Mountains north of Montreal provide excellent skiing country. A student in good health thus has ample opportunities for exercise and pleasant recreation.

SPORTS FOR WOMEN

For women students there is a wide choice of voluntary sports and recreations including archery, basketball, dancing, gymnastics, skating, skiing, swimming, and tennis. Special care is taken that no student undertakes any exercise for which she is physically unsuited.

COMPULSORY PHYSICAL EDUCATION

The University requires all students in the First year of the courses leading to the B.A., B.Sc., B.Com., B.Eng. degrees to take a course in Physical Education. There are a large number of activities and sports from which students may choose in order to satisfy this regulation. Details of the programme will be published at the time of registration.

IMMIGRATION

All students entering Canada to attend courses at the University should obtain from the Dean of their Faculty, the Director of their School, or the Registrar's Office an official letter of acceptance, and should present this to the immigration authorities at the port of entry.

BRITISH STUDENTS

British students do not require passports to enter Canada but may require them if they wish to return. They are therefore advised to obtain them before leaving for Canada.

AMERICAN STUDENTS

American students do not need passports. They must, however, bring with them evidence of their American citizenship such as their birth certificate, baptismal certificate, naturalization certificate, or passport. Students coming from the United States of America who are not citizens of that country should carry evidence that they are in the United States legally, and prior to their return should obtain a re-entry permit from the American Immigration Department.

OTHER STUDENTS

All other non Canadian students should carry passports.

UNIVERSITY BOOK STORE

The McGill University Book Store, at 3480 University Street, has a complete stock of books and materials recommended by the Staff, and a supply of microscopes, engineering instruments, drawing paper, pens, pencils, note-books, etc. The prices are standard retail prices, and profits are used directly for the benefit of the students.

CALENDAR FOR THE SESSION 1957-58

1957

May 29th, Wednesday. Convocation.

June 13th, Thursday. School Certificate Examinations begin.

June 27th, Thursday. French Summer School begins.

June 30th, Sunday. Geograpny Summer School begins.

July 1st, Monday. Dominion Day.

July 2nd, Tuesday. Summer School in Education begins.

August 3rd, Saturday. Summer School in Education ends.

August 9th, Friday. French and Geography Summer Schools end.

August 21st, Wednesday. Last day for filing Ph.D. theses for Autumn Convocation.

August 26th, Monday. Last day for filing Masters' theses for Autumn Convocation.

August 28th, Wednesday. Supplemental examinations begin in Arts, Science, Commerce, Third and Fourth years B.Ed., Physical Education, and First year Engineering.

August 29th, Thursday. Registration of Graduate Nurse students in the First year in the School for Graduate Nurses.

August 30th, Friday. Registration in Medicine and Dentistry begins.

September 2nd, Monday. Labour Day.

September 3rd, Tuesday. Registration at Macdonald College in the Institute of Education (School for Teachers, First year Physical Education, and First and Second years B.Ed.). Third and Fourth year B.Ed. students register at Macdonald College for practice teaching. Registration in Medicine and Dentistry finishes. High School Diploma students register at Macdonald College, Summer School in Mechanical Engineering begins.

September 3rd, Tuesday. Supplemental examinations begin in upper years of Engineering and Architecture.

September 4th, Wednesday. Registration of students in Third, Fourth, and Fifth years of Physical and Occupational Therapy. Lectures begin in all years of Medicine and Dentistry, and the School for Teachers.

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September 5th, Thursday. Lectures begin in Third, Fourth, and Fifth years of Physical and Occupational Therapy.

September 7th, Saturday. Registration of Fourth year B.Sc.(H.Ec.) Teaching Option students.

September 9th, Monday. Homemakers register. Special and Supplemental Summer Schools for Mechanical Drawing 511, 521, and 541 begin. Last day for receiving applications for admission to the Faculty of Graduate Studies.

September 10th, Tuesday. Last day for reports on Ph.D. theses.

September 10th, Tuesday, to September 20th, Friday. Final Orals for Ph.D.

September 11th, Wednesday. Registration of Second year (9.00-12.00) and all part-time students (1.00-4.00) in the School of Social Work.

September 12th, Thursday. Registration of First year students in the School of Social Work.

September 13th, Friday. General Assembly and reception of all students in the School of Social Work.

September 14th, Saturday. Architecture Sketching School begins.

September 16th, Monday. Last day for reports on Masters' theses.

September 16th, Monday. Conservatorium of Music opens for both practical and theoretical work. Registration of students in the Library School. Supplemental examinations begin in Divinity and in B.Sc.(Agr.) and B.Sc.(H.Ec.) courses. Fall Survey School begins. Instruction begins in the School of Social Work.

September 17th, Tuesday. Registration of students in First year Arts (1:30-4:00), Science, and Commerce (9:00-12:00 noon), Engineering, Basic Nursing and Physical and Occupational Therapy. Registration of Second year B.Sc.(H.Ec.) students and B.Sc.(Agr.) students taking Agricultural Engineering 339. Lectures begin in the Library School.

September 18th, Wednesday. Freshman Welcome. 1:45 p.m. Initial English Composition Test for Freshmen. Registration of students in First year B.Sc.(Agr.) and B.Sc. (H.Ec.).

September 19th, Thursday. Lectures begin in the First year of Arts, Science, Commerce, Engineering, Nursing and Physical and Occupational Therapy and the Faculty of Music.

September 24th, Tuesday. Other students in B.Sc.(Agr.), B.Sc.(H.Ec.), Handicrafts, and Advanced Diploma course in Agriculture register.

9:00 a.m.-4:00 p.m. registration of students in upper years of B.A., B.Sc., B.Com., whose names begin with letters A to L and all students in Third and Fourth years B.Ed.

September 24th, Tuesday and September 25th, Wednesday. Registration of students in Law and Divinity.

September 25th, Wednesday. 9:00 a.m.-4:00 p.m. registration of students in upper years of B.A., B.Sc., B.Com. whose names begin with the letters M to Z.

September 25th, Wednesday. Registration of all partial students in the Faculty of Arts and Science. Second year graduate nurse students register in the School for Graduate Nurses. Second year students in Physical and Occupational Therapy register. Registration of Third and Fourth year students in Physical Education.

September 25th, Wednesday. Registration of students in upper years of Engineering and Architecture.

September 26th, Thursday. Lectures begin for B.Sc.(Agr.), B.Sc.(H.Ec.), Handicrafts, and Advanced Diploma Course students in Agriculture.

September 26th, Thursday. Last day for receiving sessional registration forms approved by the Department in the Dean's Office, Faculty of Graduate Studies and Research. Lectures begin in upper years of Arts, Science, Commerce, Engineering, Architecture, Third and Fourth years B.Ed., Second year of the School of Physical and Occupational Therapy, and the School for Graduate Nurses (Graduate Nurse Students) and in all years of Law, Divinity, Agriculture, Household Science, and the Faculty of Graduate Studies and Research.

September 27th, Friday. Late registration for First year students in Engineering.

October 4th, Friday. Late registration for upper year students in Engineering.

October 7th, Monday. Founder's Day Convocation.
(James McGill born October 6th, 1744, died December 19th, 1813)

October 14th, Monday, Thanksgiving Day. No lectures.

October 21st, Monday. Last day for registration at the Registrar's Office and for payment of fees for students in the Faculty of Graduate Studies and Research.

October 28th, Monday. Registration and Supplemental examinations for Agriculture Diploma students.

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October 29th, Tuesday. Lectures begin in Agriculture Diploma Courses.

November 9th, Saturday. Last day of Autumn term, School for Teachers.

November 11th, Monday. Autumn term examinations begin in the School for Teachers.

November 11th, Monday. Remembrance Day Service.

November 18th, Monday, to November 22nd, Friday (inc.). First practice teaching period in the School for Teachers.

November 30th, Saturday, to December 14th, Saturday. Examinations in French and German for Ph.D. students.

December 2nd, Monday. Winter term begins in the School for Teachers.

December 20th, Friday. Last day of lectures and field work in the School of Social Work.

December 21st, Saturday. Last day of lectures in all other Faculties and Schools.

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January 6th, Monday. First term examinations begin in B.A., B.Sc., B.Com., B.Ed., B.Eng., B.Arch., Agriculture, Household Science, Divinity, and the School for Graduate Nurses.

January 6th, Monday. Second term begins in Law and Graduate Studies. Lectures resumed in Medicine, Dentistry, Music, the Library School, the School for Teachers and Physical and Occupational Therapy.

January 8th, Wednesday, to January 10th, Friday. Examinations in the School of Social Work.

January 13th, Monday. Second term begins in B.A., B.Sc., B.Com., B.Ed., B.Eng., B.Arch., Agriculture, Household Science, Divinity, the School of Social Work and the School for Graduate Nurses.

January 13th, Monday, to January 17th, Friday. Second practice teaching period in the School for Teachers.

January 20th, Monday, to January 24th, Friday. Examinations in the Library School.

January 27th, Monday. Second Term begins in the Library School.

February 10th, Monday. Founder's Day at Macdonald College.
(Sir William Macdonald born February 10th, 1831, died June 9th, 1917.)

February 14th, Friday, and February 15th, Saturday. Mid-term weekend holiday.

February 18th, Tuesday. Macdonald Royal.

March 1st, Saturday. Winter term lectures end in the School for Teachers.

March 3rd, Monday, to March 14th, Friday. Third practice teaching period in the School for Teachers.

March 15th, Saturday. Last day of lectures in Agriculture Diploma Courses.

March 17th, Monday. Spring term begins in the School for Teachers.

March 18th, Tuesday. Final examinations begin in Agriculture Diploma Courses. Supplemental examinations begin in B.Sc.(Agr.) and B.Sc. (H.Ec.) courses.

March 26th, Wednesday. Graduation exercises, Diploma courses in Agriculture.

April 3rd, Thursday. Lectures end in upper years of Engineering and Architecture.

April 4th, Friday to April 7th, Monday (inclusive). Easter vacation in all Faculties and Schools.

April 8th, Tuesday. Examinations begin in the upper years of Engineering and Architecture.

April 14th, Monday. Last day for filing Ph.D. theses.

April 18th, Friday. Last day of lectures in the School of Social Work.

April 19th, Saturday. Lectures end in First year Engineering and in all other Faculties and Schools except Music, Medicine, Dentistry, the Library School, and the School of Social Work.

April 20th, Sunday. Baccalaureate Service at Macdonald College — 3:00 p.m.

April 22nd, Tuesday. Last day for filing theses for Masters' degrees in Graduate Faculty and in the School of Social Work.

April 23rd, Wednesday. Examinations begin in Arts, Science, Commerce, Third and Fourth years B.Ed., First year Engineering, all years Law, Divinity, Agriculture, Household Science, the School for Graduate Nurses, and the School of Physical and Occupational Therapy.

April 23rd, Wednesday, to April 25th, Friday. Examinations in the School of Social Work.

April 25th, Friday. Examinations begin in Music.

April 26th, Saturday. Instruction terminates in Conservatorium of Music.

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April 28th, Monday. Full time field work (First year) and full time research (Second year) begin in the School of Social Work.

May 1st, Thursday. Last day for application for the majority of Graduate Fellowships. Last day of lectures in Music.

May 2nd, Friday. Lectures end in the Library School.

May 5th, Monday, to May 14th, Wednesday. Examinations in the Library School.

May 5th, Monday. Last day for reports on Ph.D. theses.

May 5th, Monday to May 16th, Friday. Final Orals for Ph.D.

May 14th, Wednesday. Final examinations begin for Homemakers.

May 15th, Thursday. Last day for reports on Masters' theses.

May 17th, Saturday. Last day of Spring term, School for Teachers.

May 19th, Monday, to May 23rd, Friday. Library School trip.

May 21st, Wednesday. Examinations begin in the School for Teachers.

May 28th, Wednesday. Convocation.

June 1st, Sunday. Divine Service, School for Teachers, Handicrafts Course, and Homemaker class of the School of Household Science.

June 5th, Thursday. Graduation exercises, School for Teachers, Handicrafts Course, and Homemaker class of the School of Household Science.

June 6th, Friday. Second term ends in the School of Social Work.

August 20th, Wednesday. Last day for filing theses in School of Social Work (for Autumn Convocation).

McGill University

Montreal

General Announcement

1957-1958

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture and School of Household Science)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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ADMINISTRATIVE OFFICERS

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HELEN R. NEILSON M.B.E., B.H.S., M.Sc. — *Director of the School of Household Science*

J. H. HOLTON, B.Com. — *Secretary*

A. B. WALSH, B.Sc.(Agr.) — *Registrar*

INSTITUTE OF EDUCATION

D. C. MUNROE, M.A. — *Director*

McGill University

A BRIEF DESCRIPTION

McGill University, founded under a bequest of the Hon. James McGill, a prosperous Montreal merchant who died in 1813, was established as a university by Royal Charter in 1821. It is privately endowed, the trustees of its funds being the Board of Governors who constitute "The Royal Institution for the Advancement of Learning".

The University has nine faculties and nine schools. Particulars of these are given on pages 411 to 418. Eight of the faculties are situated in Montreal where the University Campus lies on the lower slopes of Mount Royal, the hill from which the city takes its name. Macdonald College at Ste. Anne de Bellevue, about twenty-five miles from Montreal, is an incorporated College of the University, and houses the Faculty of Agriculture, the School of Household Science, and the Institute of Education.

McGill University is undenominational and has now for many years been co-educational in most of its faculties and schools. Admission is definitely selective, the number of students accepted into each faculty being limited. In the 1956-57 session the number of men students studying for either degrees or diplomas was 4,926 and the corresponding number of women students was 1,815. These students are drawn from every province of Canada and from many other countries, the connexions with Great Britain, the West Indies, and the United States naturally being strong. At present there are in residence at the University about 66 students from Great Britain and 442 from the United States.

The following pages are intended to give in a condensed form the preliminary information that a student who contemplates entering the University would require, together with the entrance requirements of the various faculties and a list of the certificates accepted. Details of the Junior and Senior School Certificates, the entrance examinations conducted by the University, are given in the School Certificate Announcement. Separate announcements of the several faculties and schools are published and a list of these is printed on the inside of the title page. There is also a pamphlet enclosed with this announcement which gives the fees in the various faculties and schools, a description of the University residences for men and women, an account of the Health Service, and a calendar of dates. The Registrar's Office will be pleased to send one or more of these announcements to anyone interested or to answer inquiries.

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VETERANS' AFFAIRS

E. Clifford Knowles, M.A., D.D. — *Student Counsellor*

ADVICE

Veterans who have any problems are recommended to consult Dr. E. C. Knowles, the Student Counsellor. Dr. Knowles has his office in the Arts Building.

Visits are made periodically to Macdonald College. For anything urgent, however, students may get in touch with Dr. Knowles through the Assistant Bursar at Macdonald College.

The Faculties and Schools of the University

A BRIEF OUTLINE WITH REFERENCES

Announcements of these faculties and schools giving further details may be obtained from the Registrar's Office.

For fees see the Pamphlet of General Information enclosed with this announcement.

I. McGILL COLLEGE (FACULTY OF ARTS AND SCIENCE)

Including the School of Commerce

(*See also page 421*)

The undergraduate work of the University in Arts, in Pure Science, and in Commerce is done in McGill College, usually called the Faculty of Arts and Science. The Dean of McGill College is the Dean of the Faculty of Arts and Science. The following degrees are awarded in the Faculty:

Bachelor of Arts (B.A.)
Bachelor of Science (B.Sc.)
Bachelor of Commerce (B.Com.)
Bachelor of Education (B.Ed.)
Bachelor of Education (Physical Education)

In the case of the first three of these degrees, the Faculty offers both a General Degree and an Honours Degree.

The Library School and the School of Social Work are integral parts of the Faculty which, therefore, recommends to Senate candidates for the degrees of *Bachelor of Library Science* and *Master of Social Work.*

The work of students who are candidates for the degree of Bachelor of Commerce and for the degrees of Bachelor of Education and Bachelor of Education (P.E.) is supervised, under the Dean, by the Directors of the School of Commerce and of the Institute of Education, respectively. While the School and the Institute are integral parts of the Faculty, each has a separate Announcement.

Period of Resident Study in the Faculty: Four years from Junior Matriculation or three years from Senior Matriculation (see School Certificate Announcement). In the B.Ed. course, the work of the first two years is taken at Macdonald College, at Ste. Anne de Bellevue, and the final two years are taken in Montreal.

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Minimum Entrance Requirements: Junior Matriculation for admission to the First year. Junior and Senior Matriculation with second-class standing for admission to the Second year. (*See pages 422 to 425.*) The entrance requirements for students from American schools and for students from Great Britain are stated on page 431.

Application Forms: For application forms apply to the Registrar's Office.

For further particulars of this faculty, see pages 421 to 431.

II. FACULTY OF MEDICINE

Degrees offered: Doctor of Medicine and Master of Surgery (M.D., C.M.).

Diplomas offered: The Diploma of Tropical Medicine and Hygiene (D.T.M. and H.) and diplomas for advanced study in the various clinical departments of the faculty.

Period of Study in the Faculty for the Degree: Four years.

Licence to Practise: A year of interneship, or a further year of study, is required before the University certifies that a graduate is entitled to take the qualifying examination of any of the licensing boards, so that the length of the full professional course is five years.

Entrance Qualifications: The normal requirement is a B.A. or a B.Sc. degree, but students with exceptionally high qualifications may apply for admission at the end of the Third year of their course. The pre-medical work must include:—

Physics: One year of general college Physics with laboratory work.

Biology: One year of general Biology or Zoology with laboratory work. (One year of Zoology will be accepted, but Botany alone is not sufficient.)

Chemistry: Two years.

(*a*) One full year's course of General Chemistry with laboratory work.

(*b*) One full year's course of Organic Chemistry with laboratory work.

All candidates for admission to the Medical Faculty are required to take the Medical College Admission Test, or furnish a satisfactory explanation of why they are unable to do so.

Students wishing to proceed towards medicine at McGill University are reminded that no specific "pre-medical" course is offered. Work preparatory to Medicine is taken while students are proceeding regularly towards the B.A. or the B.Sc. degree in the Faculty of Arts and Science. Students who are preparing for entrance to the Faculty of Medicine are advised that they should not choose subjects which properly belong to the medical course, but should devote their time to securing a thorough preparation in the fundamental scientific and humanistic subjects.

Students are strongly advised to make themselves familiar with the licensing regulations of the province or state in which they intend to practise and to take the necessary steps to become registered. The University requires Canadian students to register with the licensing body of their province before beginning their medical course.

Since the University can accept only a small percentage of those who apply, application should be made to the Secretary of the Faculty of Medicine as early as possible and in no case after January 1st.

For further details apply to the Secretary of the Faculty. Application forms for admission into the Faculty of Arts and Science or for admission directly into the Faculty of Medicine may be obtained from the Registrar's Office.

III. FACULTY OF LAW

The course in the Faculty of Law provides a liberal education in legal principles and theory, and prepares students for the legal and notarial professions as well as for public service and business. In the field of private law, the curriculum is based on the Civil Law system and in particular on the Quebec Civil Code; in the field of public law, stress is laid on Constitutional, International, and Administrative Law, and on the new institutions and procedures resulting from the increased rôle of government in the modern state.

Degree offered: Bachelor of Civil Law (B.C.L.).

Period of Study for the degree: Three years.

Students proceeding to the legal and notarial professions are required to take an additional year of practical training and to pass further examinations.

Language Requirement: Students should be able to read French easily, and reasonable fluency in spoken French is recommended for those who intend to practise in the Courts of this Province.

Entrance Qualifications: Candidates who have completed at least two years in the Faculty of Arts and Science at McGill University will be eligible for admission to the Faculty of Law. Other candidates for admission will have to satisfy the Faculty that they have attained an equivalent educational standard and are intellectually qualified to pursue with advantage the study of Law.

In order to be admitted to the study of law by the Quebec Bar, candidates must hold the degree of B.A. from a Canadian university or a university or college of which the degree is recognized jointly by Laval, McGill, Montreal, Ottawa, and Sherbrooke universities and in addition

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by the Bar, and satisfy the Bar examiners that they have successfully completed "the regular course in Philosophy" in an approved university. In order to be admitted to the legal profession they must be Canadian citizens.

Candidates for admission to the notarial profession must be Canadian citizens and hold the degree of B.A. from a Canadian or English university or a University or College the degree of which is recognized as the equivalent by Laval, McGill, and Montreal Universities. They are required to have studied Latin.

Further information regarding admission to the Bar may be obtained by applying to Mr. Charles Coderre, Q.C., Montreal Tramways Building, 159 Craig St. W., Montreal, or by consulting the Bar Act of the Province of Quebec. Information regarding admission to the Notarial profession can be obtained by applying to Mr. Arthur Courtois, Room 320, New Court House, Montreal, or by consulting the Notarial Code, 1941 R.S.Q., chap. 263 (as amended).

Application forms for admission may be obtained from the Secretary of the Faculty.

IV. FACULTY OF ENGINEERING

Degrees offered: (1) Bachelor of Engineering (B.Eng.), in the Departments of Chemical, Civil, Electrical, Mechanical, Metallurgical, and Mining Engineering, and in Engineering Physics; (2) Bachelor of Architecture. (*See* School of Architecture, *below.*)

Period of Study for the Degree: Five years from Junior Matriculation.

Entrance Qualifications: For admission to the First year, Junior Matriculation as for B.Sc. with an average mark of at least 60% and with definite strength in Mathematics and Science (see page 422). For admission to the Second year, full B.Sc. Junior Matriculation, and Senior Matriculation in English, Mathematics (Algebra, Trigonometry, and Co-ordinate Geometry), Physics, Chemistry, and one of Biology, French, Geography, German, History, Latin, or Spanish. The regulations are given in full in the School Certificate Examinations Announcement and in the Announcement of the Faculty of Engineering.

Students should not contemplate entering the Faculty of Engineering unless they have more than average mathematical ability. The minimum requirements in this subject are stated in the School Certificate Announcement. For further details see the Announcement of the Faculty of Engineering.

V. SCHOOL OF ARCHITECTURE (IN THE FACULTY OF ENGINEERING)

Degree offered: Bachelor of Architecture (B.Arch.).

Period of Study for the Degree: Six years from Junior Matriculation.

The entrance requirements in Architecture are the same as those for the Engineering courses (*see above*). The length of the course is six years, the first year being identical with the first year in Engineering.

For further details, see the Announcement of the Faculty of Engineering.

VI. FACULTY OF DENTISTRY

Degree offered: Doctor of Dental Surgery (D.D.S.).

Period of Study in the Faculty for the Degree: Four years.

Entrance Qualifications: At least two years in Arts and Science, including two years of lectures and laboratory work in Chemistry (inorganic and organic), and one year each of Physics and Biology (which must include a half year of Zoology). High School Physics will not be accepted. The requirement is one year of University Physics.

To be qualified to practise in the Province of Quebec, a student must have taken at least two years of the B.A. or B.Sc course in an English university of Canada recognized by McGill University. The student should also register with the College of Dental Surgeons of the Province of Quebec as soon as he is admitted to the First Year of the Faculty of Dentistry.

VII. FACULTY OF AGRICULTURE

This faculty is housed in Macdonald College at Ste. Anne de Bellevue, twenty-five miles from Montreal.

Degree offered: Bachelor of Science in Agriculture, B.Sc. (Agr.).

Diploma offered: Diploma in Agriculture.

Period of Study in the Faculty for the Degree: Four years.

For entrance qualifications, fees, and further details, see the Announcement of Macdonald College, which may be obtained from the Registrar, Macdonald College, P.Q.

VIII. FACULTY OF MUSIC

Degree offered: Bachelor of Music (Mus.B.).

Diplomas offered: Licentiate in Music (L. Mus.).
Associate in Music (A. Mus.).

Minimum period of study in the Faculty for the Degree: Four years.

For further details see the Announcement of the Faculty of Music.

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IX. FACULTY OF DIVINITY

Degree offered: Bachelor of Divinity (B.D.).

Period of Study for the Degree: Three years.

Entrance Qualifications: A Bachelor's degree (preferably B.A.) from a recognized University.

For details, see the Announcement of the Faculty of Divinity.

X. FACULTY OF GRADUATE STUDIES AND RESEARCH

Degrees offered: Master of Arts (M.A.), Master of Science (M.Sc.), Master of Engineering (M.Eng.), Master of Architecture (M.Arch.), Master of Sacred Theology (S.T.M.), Master of Commerce (M.Com.), Master of Civil Law (M.C.L.), Master of (Applied) Science M.Sc.(App.), Master of Library Science (M.L.S.), Master of Laws (LL.M.), Doctor of Philosophy (Ph.D.), Doctor of Civil Law (D.C.L.), Doctor of Music (Mus.D.).

For details consult the Announcement of the Faculty of Graduate Studies and Research.

XI. SCHOOL OF HOUSEHOLD SCIENCE

(IN THE FACULTY OF AGRICULTURE)

(Women Only)

Degree offered: Bachelor of Science in Home Economics [B.Sc. (H.Ec.)].

Diploma offered: Homemaker Certificate.

Period of Study for the Degree: Four years.

For entrance requirements and other details see the Announcement of Macdonald College which may be obtained from the Registrar, Macdonald College, P.Q.

XII. LIBRARY SCHOOL (IN THE FACULTY OF ARTS AND SCIENCE)

Degree offered: Bachelor of Library Science (B.L.S.).

Period of Study: One year.

Entrance Qualifications: Bachelor's degree.

For details see the Announcement of the Library School.

XIII. SCHOOL FOR GRADUATE NURSES

(IN THE FACULTY OF MEDICINE)

DIPLOMA COURSES

One-year programmes in:

1. Teaching and Supervision in Schools of Nursing with specialization in Teaching of the Basic Sciences, Medical-Surgical Nursing, Psychiatric Nursing, and Maternal and Child Health Nursing. (Students

may elect to do the major part of their work in either Pediatric Nursing or Obstetric Nursing.)

2. Public Health Nursing.

Entrance Qualifications: Junior Matriculation or its equivalent, and graduation from an approved school of nursing.

Satisfactory professional experience is a prerequisite.

DEGREE COURSES

Bachelor of Nursing

Two-year programmes leading to a degree of Bachelor of Nursing (B.N.), with study in two main areas:

1. Advanced Nursing Education (with opportunity to continue study in the special field selected in First year) *or* Administration in Hospitals and Schools of Nursing.
2. Teaching and Supervision *or* Administration in Public Health Nursing.

Entrance Qualifications: Senior Matriculation or its equivalent, and graduation from an approved school of nursing.

Satisfactory professional experience is a prerequisite.

Bachelor of Science in Nursing

This is a basic programme for high school graduates which prepares them for professional nursing in the hospital or the public health nursing fields and to practice under the Quebec Nurses' Act. For candidates who enter with McGill Junior Matriculation, or its equivalent, the time needed to complete the requirements is five years.

Entrance Qualifications: McGill Junior Matriculation, or its equivalent, with a general average for all papers of at least 65 per cent.

XIV. SCHOOL OF SOCIAL WORK (IN THE FACULTY OF ARTS AND SCIENCE)

A two-year graduate course leading to the degree of Master of Social Work (M.S.W.).

Entrance Qualifications: A Bachelor's degree from a university or college of recognized standing. Applicants should have completed, with superior standing, an undergraduate course providing a broad liberal education, with a substantial core in the social sciences, particularly sociology, psychology, economics, and political science.

For details see the separate Announcement of the School of Social Work.

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XV. SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY

(IN THE FACULTY OF MEDICINE)

(Women Only)

Period of Study: Three years in the School leading to the Diploma of Physical or of Occupational Therapy. Five years in the School leading to a degree in Physical and Occupational Therapy [B.Sc.(P.&O.T.)].

Entrance Qualifications: Junior Matriculation or its equivalent.

For further particulars see the separate Announcement of the School of Physical and Occupational Therapy.

XVI. FRENCH SUMMER SCHOOL

(IN THE FACULTY OF ARTS AND SCIENCE)

A residential summer school with an entirely French staff, offering undergraduate and graduate courses.

Dates: 28th June to 10th August.

Inclusive Fee (tuition, room, and board): $295.

For special Announcement apply to the Director, French Summer School, Arts Building, McGill University.

XVII. GEOGRAPHY SUMMER SCHOOL

(IN THE FACULTY OF ARTS AND SCIENCE)

A residential six weeks' summer school held at Stanstead, Que., and offering undergraduate and graduate courses.

Dates: June 30th, August 9th, 1957.

For special Announcement, apply to the Director, Geography Summer School, McGill University, Montreal.

XVIII. INSTITUTE OF EDUCATION

(IN THE FACULTY OF ARTS AND SCIENCE)

The School for Teachers and the School of Physical Education are part of this Institute.

Degrees offered: Bachelor of Education, and
Bachelor of Education (P.E.)

Diplomas offered: Diploma in Physical Education, and High School, Intermediate, Elementary, Kindergarten Diplomas (Issued by the Central Board of Examiners, Quebec).

Period of Study: Degree courses—four years (two years at Macdonald College and two years at McGill University.

Diploma in Physical Education—two years
Other Diplomas—one and two years

For further details, see the Announcement of the Institute of Education.

APPLICATION FOR ADMISSION TO ALL FACULTIES

Application forms for all years in the Faculties of Arts and Science, and Engineering, and for the First Year in Medicine, Dentistry, and Divinity may be obtained from the Registrar's Office. Application for admission to other faculties or years should in the first instance be made by letter to the Registrar.

All letters of inquiry should indicate the degree or diploma in which the candidate is interested, so that specific advice can be given regarding entrance requirements.

ADMISSION FROM OTHER UNIVERSITIES

A student of another university applying for advanced standing or for exemption from any subject or subjects which he has already studied must submit with his application a certified copy of his academic record, and may in addition be required to submit a Calendar or Bulletin of the University in which he has previously studied. He should also arrange to have sent separately to the University a confidential report from an officer of instruction or administration who is familiar with his work.

RESIDENTIAL ACCOMMODATION

The University maintains a number of residences which are described in the General Information Pamphlet enclosed with this Announcement. Space is limited, however, and the University does not undertake to provide living accommodation for all *men* students. Application for, and admission into, an academic course are entirely separate from application for, and admission into, a University residence. Residential application forms can be obtained from the individual residence or from the Registrar's Office.

SCHOLARSHIPS AND BURSARIES

Details of the University Entrance Scholarships and of other scholarships, bursaries, and loan funds are given in the Scholarships Announcement which may be obtained from the Registrar's Office.

PHYSICAL EDUCATION REQUIREMENT

All students in the First year of the Faculty of Arts and Science and the Faculty of Engineering are required to take and complete a programme in Physical Education.

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FOREIGN STUDENTS

McGill University welcomes properly-qualified foreign students provided they have an adequate knowledge of written and spoken English. Their qualifications are normally judged upon the results of their academic record in the country they come from and there are no special entrance examinations for them. The University does not offer any intensive summer courses in English for foreign students, but the Registrar's Office will be glad to give information about these courses in other Canadian universities. Information about similar courses offered by colleges in the United States can be obtained from the Institute of International Education, 1 East 67th Street, New York 21, N.Y.

The Faculty of Arts and Science

For further particulars see page 411 and also the separate Announcement of the Faculty.

The undergraduate work of the University in the Humanities, and in Social Sciences (B.A.), in the Physical and Biological Sciences (B.Sc.), and in Commerce (B.Com.) is done in McGill College, usually called the Faculty of Arts and Science. Complete details of these courses are given in the separate Announcements of the Faculty of Arts and Science and the School of Commerce, but the information on page 411 and the following notes will, it is hoped, answer most of the inquiries a student entering the First or Second year of the Faculty would wish to make before actually coming to the University.

Correspondence should in the first instance be sent to the University Registrar.

WOMEN STUDENTS

Women are admitted to the courses and to the degrees of the Faculty on the same terms as men.

Women students whose homes are outside Montreal must make application for residence before May 31st to the Warden of the Royal Victoria College. At the same time, they must submit their academic applications. Forms for these purposes are obtainable from the College or from the Registrar's Office. (*See also pages 307 to 310 of the General Information Pamphlet enclosed with this Announcement.*)

AGE OF ADMISSION

Except in special circumstances, no student under the age of sixteen is admitted to the First year, or under the age of seventeen to the Second year.

ENTRANCE REQUIREMENTS

Eligibility to enter the University through Junior or Senior Matriculation is determined fundamentally by reference to the standards maintained by the McGill School Certificate Examinations. These examinations are described in detail in the School Certificate Examinations Announcement, but the names of the required papers are given below. The pass mark is in all cases 50%. Certain other public examinations also recognized for admission to the University are listed on pages 430 and 431. A student with incomplete qualifications cannot be admitted as a regular undergraduate.

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ENTRANCE THROUGH McGILL SCHOOL CERTIFICATE EXAMINATIONS

1. ENTRANCE TO THE FIRST YEAR (Junior Matriculation)

To qualify for admission to the first year of the Faculty of Arts and Science a candidate must pass within a period of sixteen months in each of the ten McGill School Certificate papers listed below, or their recognized equivalents.

If a candidate has failed in a paper or if his average falls below the required value, he may ask for reconsideration of his application on the basis of re-written papers, but the final mark will be counted in all cases.

(*a*) *For admission to the First year of the B.A. course* a candidate must pass in each of the following papers in the University's Junior School Certificate and obtain an average of at least 65% on the examination as a whole.

No. of Papers	Subject
2	English
1	General History
2	Latin *or* Greek
2	French; Latin; Greek; German; *or* Spanish; (a language not already chosen)
2	Elementary Algebra *and* Elementary Geometry
1	One of the following: Biology; Botany; Chemistry; Drawing; Geography; British or Canadian History; Physics; Music; Intermediate Algebra; Trigonometry; *or* a foreign language not already chosen (the average of the two papers in a foreign language is counted).
10 papers	

A candidate who has not taken Latin or Greek in the entrance examination may be admitted if he has the full B.Sc. qualifications with an average mark of at least 70%. If he is admitted he will be required to include two years of Latin or Greek in his B.A. programme.

(*b*) *For admission to the First year of the B.Sc. course* a candidate must pass the following papers in the University's Junior School Certificate Examination and normally obtain at least 70% upon the examination as a whole. Special consideration may, however, be given to B.Sc. candidates who have secured an average of 65% to 70% and have shown special distinction in such scientific subjects as they have taken in their matriculation, i.e., Mathematics, Chemistry, Physics, Biology, or Botany.

No. of Papers	Subject
2	English
1	General History
2	French *or* German (both papers)
1	Elementary Algebra
1	Elementary Geometry
1	One of the following: Biology; Botany; Chemistry; Physics
2	*Either* Latin *or* Spanish *or* French *or* German (if not already chosen), *or* any two of the following papers not already chosen: (a) Intermediate Algebra (b) Trigonometry (c) Biology *or* Botany (Biology *and* Botany may not both be chosen) (d) Chemistry (e) Geography (f) Physics (g) British *or* Canadian History (h) Music *or* Drawing (Music *and* Drawing may not both be chosen)
10 papers	

(*c*) *For admission to the First year of the B.Com. course*, beginning with the 1957-58 session, a candidate must have satisfied *either* the requirements for entrance to the B.A. *or* the requirements for entrance to the B.Sc. Course.

(*d*) *For admission to the First year of the B.Ed. or B.Ed. (P.E.) course* a candidate must fulfil the requirements for admission to the first year of the B.A. or the B.Sc. course. Students applying for admission by means of the Quebec High School Leaving examinations may offer Agriculture, Household Science, or North American Literature as optional papers.

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2. ENTRANCE TO THE SECOND YEAR (Senior Matriculation)

A candidate may be considered for admission to the Second year of the Faculty of Arts and Science if he has passed in the appropriate ten papers of the McGill Junior School Certificate Examination, or their recognized equivalents, and if he has passed within a period of sixteen months in the papers of the McGill Senior School Certificate Examination, or their recognized equivalents, with an average of at least 70% on the examination as a whole. Special consideration may, however, be given to candidates who have received an average of 65% to 70% if they have obtained high standing in all such subjects as they have taken in the examination which are appropriate to the degree course which they wish to enter. These are: *in Arts*—English, Languages, History; *in Science*—Mathematics, Physics, Chemistry, Biological Science; *in Commerce*—English, History, Mathematics.

The same provisions regarding re-written papers apply to Senior Matriculation as apply to Junior Matriculation (see page 422).

Only in exceptional circumstances may a student who has not qualified for entrance to the First year through Junior Matriculation be admitted to the Second Year by Senior Matriculation alone.

(*a*) *For admission to the Second year of the B.A. course* —
English
Latin *or* Greek
Mathematics (*see footnotes* [1] *and* [2])

---

[1]Two papers: one in Algebra and one in Trigonometry. Candidates who have passed in School Certificate Trigonometry may write Co-ordinate Geometry instead of Senior Trigonometry. The paper in Co-ordinate Geometry, written in addition to the other two, if necessary, is strongly recommended for candidates who intend to study for Honours in Mathematics, Physics, or Chemistry.

[2]All B.A. candidates are advised to offer Mathematics as one of the Senior Matriculation subjects. If, however, a student intends to follow an Honours course in one of the Humanities, or in Political Science, or in History, he may in certain circumstances be permitted to offer another subject in which he has shown marked proficiency in place of Mathematics. The regulations governing the matter are quite specific, and any student who contemplates making the substitution should, *before he commences his Senior Matriculation year*, consult the School Certificate Examinations Announcement or the Announcement of the Faculty of Arts and Science to make sure that he is eligible.

Any two of the following:—

1. History
2. Latin *or* Greek (the one not already chosen)
3. French
4. German
5. Spanish
6. Science (Physics *or* Chemistry *or* Biology)
7. Music
8. Geography

Candidates who intend to apply for entrance to the Faculty of Medicine at the end of the Third year of the B.A. course must take Mathematics.

(*b*) *For admission to the Second year of the B.Sc. course* —

English
Mathematics[1]
Physics
Chemistry
French *or* German[2] *or* Spanish *or* Latin *or* Greek *or* History *or* Biology *or* Geography

(*c*) *For admission to the Second year of the B.Com. course* —

English
Mathematics[1]
Accountancy[3]
A modern foreign language
History, *or* a second foreign language, *or* a Science (including Geography)

---

[1]For B.Sc. and B.Com.—two papers, one in Algebra and one in Trigonometry. Candidates who have passed in School Certificate Trigonometry may write Co-ordinate Geometry instead of Senior Trigonometry.

The paper in Co-ordinate Geometry, written in addition to the other two, if necessary, is strongly recommended for candidates who intend to study for Honours in Mathematics, Physics, or Chemistry.

[2]A candidate who has passed the two papers in Junior French may obtain Senior B.Sc. or B.Eng. standing in German by passing the Junior examinations in this subject.

[3]Applications of students who have substituted another subject for Accountancy may be considered if their standing is high enough.

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FURTHER INFORMATION

Full details of the above examinations are given in the School Certificate Examinations Announcement.

APPLICATION FOR ADMISSION

It is advantageous for out-of-town candidates to make preliminary application, on the proper forms, as early in the year as possible, supplementing this later with the required certificates, transcripts, etc., as these become available.

Applicants should note that clear photo-copies of original documents are acceptable if submitted in duplicate. Sending such copies avoids the risk of losing the originals in the mails.

The Admissions Committee also requires a confidential report from the Principal of the applicant's school. This may if desired be made on a form obtainable from the Registrar.

Students whose native language is not English must satisfy the Assistant Dean that their command of written and spoken English is adequate.

The number of students admitted is limited, and the Faculty is not bound to accept all applicants who have passed the required examinations.

CLASSES OF STUDENT IN THE FACULTY

(1) *Regular Undergraduates:* Students with complete matriculation qualifications taking the regular work of their year towards a degree.

(2) *Limited Undergraduates:* Students with complete matriculation qualifications who have been given the permission of the Dean of the Faculty to distribute the four years' work over five or more years (but not more than eight years), on the understanding that the sequence of courses conforms to the regular undergraduate rules and time table.

Limited Undergraduates are not eligible for scholarships, bursaries, or prizes of any description and may not read for an honours degree.

(3) *Partial Students:* Students not registered as proceeding to a degree who are allowed to take one or more lecture courses. Partial students must obtain the Dean's permission to register and must satisfy the lecturer in the course concerned that they have sufficient ability to do the work in such a course. Applications may be refused if limitation of space in lecture rooms and laboratories requires it. A student who has tried and failed to matriculate is not allowed to register as a partial student except in special circumstances.

If a partial student hopes to secure credit for a course, he or she must fulfil all the requirements of classroom work and tests which are prescribed for that course for regular students.

A partial student who has successfully passed the courses of a previous year is not necessarily accepted at a later session.

Subject to the above limitations, lectures are open to partial students in both honours and general classes. Such a student may request the Registrar to issue a certificate stating that he has followed certain courses and showing his class standing in each. Work taken by a partial student cannot, however, be counted towards a McGill degree without a special vote of Faculty.

Partial students are not eligible for scholarships, bursaries, medals, or prizes.

PERIOD OF STUDY

The regular length of the course for a B.A., B.Sc., or B.Com. degree is four years from Junior Matriculation, or three years from Senior Matriculation. Students from other universities are sometimes admitted to the upper years, but the bachelor's degree is never conferred upon a student who has spent less than two years in the Faculty.

REGISTRATION

First year students register on Tuesday, September 17th, in the Sir Arthur Currie Gymnasium-Armoury. Science and Commerce students register from 9.00 a.m. to 12.00 noon; Arts Students from 1.30 to 4.00 p.m.

Upper year students in Arts, Science, and Commerce whose names begin with the letters A to L and all Third and Fourth year B.Ed. students register on Tuesday, September 24th from 9.00 a.m. to 4.00 p.m.

Upper year students in Arts, Science, and Commerce whose names begin with the letters M to Z and all partial students register on Wednesday, September 25th from 9.00 a.m. to 4.00 p.m.

After the above official days of registration a special late registration fee must be paid (see General Information pamphlet).

No student is admitted after October 15th except by special permission of the Dean.

Special regulations for the registration of women students are given in the General Information pamphlet.

ADVISERS

Students may consult the Dean, any of the Group Chairmen, or the Assistant Dean, at any time. Women students may also consult the Warden of the Royal Victoria College.

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FIRST YEAR PROGRAMME

The academic programme of a student in the First year of the Faculty is generally similar to the Senior Matriculation subjects (*See pages 424 and 425*) required for direct admission to the Second year, but a greater number of optional subjects is provided within the University. An exception is the compulsory course in Economic History in the First year of Commerce, for there is no course equivalent to this in Senior Matriculation.

ADVANCED COURSES IN THE FIRST YEAR

The Departments giving instruction in the First year offer special lectures or work of a more advanced character to students with adequate qualifications. These advanced courses are generally arranged by the Departments when lectures actually commence.

Students in the First year who have the necessary qualifications may be permitted by the Dean to take one or more Second year courses.

GENERAL DEGREES AND HONOURS DEGREES

An undergraduate in the Faculty of Arts and Science may proceed to a General Degree, involving the study of a fairly wide range of subjects with a limited amount of specialization, or to an Honours Degree which, after the Second year, necessitates almost complete specialization in either one or two subjects. For details see the Announcement of the Faculty of Arts and Science.

The word "Honours" is used in the Faculty of Arts and Science in the above sense only. Students who have shown marked ability while proceeding to a General Degree may be awarded Distinction or Great Distinction upon graduating, but do not obtain Honours.

COURSES

Study for degrees in the Faculty is conducted by the following Departments:

Anatomy
(s) Bacteriology and Immunology
(s) Biochemistry
(s) Botany
(s) Chemistry
(a) Classics (Latin and Greek)
(a) Economics and Political Science
Education
(a) English (including some work in Theatre Arts)
Fine Arts
(s) Genetics

(a,s) Geography
(s) Geological Sciences
(a) German
(a) History
(a,s) Mathematics
Music
(a) Philosophy
(s) Physics
(s) Physiology
(a,s) Psychology
Religion
Romance Languages
[French(a); Spanish, Italian]
(a) Sociology and Anthropology
(s) Zoology

Certain interdepartmental courses are offered as well

Departments offering Honours courses for the B.A. degree are marked (a): those offering Honours courses for the B.Sc. degree are marked (s).

Students proceeding to the B.Com. degree also take courses in

Accounting
Business Organization and Industrial Management
Commercial Law
Marketing
Science in Economic Life

B. Com. students who undertake sufficiently specialized work in Economics or Political Science (Public Administration) may obtain an Honours degree in one or other of these subjects.

ATTENDANCE

Students in the First and Second years are required to attend at least seven-eighths of the total number of lectures and of the total number of laboratory periods in each course.

EXAMINATION MARKS

The pass mark in all examinations is 50 per cent, and the minimum marks for first and second class standing are 80 per cent and 65 per cent respectively.

THE TWO TERMS

The regular session is divided into two terms, the first starting about the 1st of October and the second starting about the 12th of January. In the first term, however, lectures in the compulsory courses of the First year begin a week earlier. (For Calendar, see the General Information Pamphlet.) Students commencing a year in the Faculty are normally permitted to enter only at the beginning of the Fall term.

ADMISSION TO THE SECOND AND THIRD YEARS

Applications for entrance to the Second and Third years of the Faculty should be made to the Registrar's Office on the proper forms, and must

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be accompanied by complete details of previous school and university work. (*See also pages 419, 424.*)

To obtain a bachelor's degree a student must spend at least two years in McGill College.

CONCERNING STUDENTS WHO INTEND TO PROCEED INTO THE PROFESSIONAL FACULTIES

Each undergraduate in the Faculty is required to register for one of the bachelor's degrees offered (see page 411), and, unless otherwise instructed by the Dean, must follow the regular work of his year toward this degree.

Students intending to transfer into one of the professional faculties before graduating in Arts and Science should make themselves familiar with the entrance requirements of the faculty they seek to enter and should see that the courses they choose conform with these requirements.

For details concerning the granting of the B.A. or B.Sc. degree to students who transfer into the Faculty of Medicine or the Faculty of Dentistry at the end of the Third year, see the Announcement of the Faculty of Arts and Science.

SCHOLARSHIPS AND BURSARIES

A separate announcement giving details of scholarships and bursaries may be obtained from the Registrar's Office.

EXAMINATIONS RECOGNIZED FOR ADMISSION TO THE UNIVERSITY

McGill University recognizes a number of public examinations as conferring, in certain circumstances, the equivalent of Junior or Senior Matriculation standing for admission to the Faculty of Arts and Science, the Faculty of Engineering, and other faculties and schools.

The Admissions Committees of the various faculties require generally that:

(1) The certificate has been obtained under no easier conditions than those of McGill Matriculation.

(2) The subjects of the examination and the school course followed are those the University requires.

(3) The school records and confidential reports are satisfactory.

Candidates who wish to enter by certificate should in no circumstances come to the University without first having obtained an official acceptance of their application.

The following gives a brief outline of the certificates and examinations *which will be considered on their merits* towards meeting the University entrance requirements. For more extensive lists and further details see the School Certificate Examinations Announcement.

1. *For admission to the First year of the B.A., B.Sc., B. Com., B.Ed., B.Eng., B.Arch., B.Sc.(Agr.), B.Sc.(H.Ec.), B.Ed.(P.E.), and B.Sc.(P&O.T.)* courses:

Canada

The recognized Junior Matriculation or equivalent examinations of the various provinces.

Great Britain

In the General Certificate of Education, passes in five suitable subjects excluding Religious Knowledge will be the normal standard for admission.

United States

The tests of the College Entrance Examination Board. All candidates from the United States are advised to write these tests, preferably at the January or the March session. The Scholastic Aptitude tests and three Achievement tests, the latter chosen in consultation with the applicant's school Principal, should be taken. Further particulars are available from the Registrar's Office.

Miscellaneous

Other certificates such as those issued by universities or public examining boards will be judged on their merits and accepted if they meet all the University requirements.

2. *For admission to the Second year of the B.A., B.Sc., B.Com., B.Ed., B.Eng., B.Arch., B.Sc.(Agr.), B.Sc.(H.Ec.), B.Ed.(P.E.), and B.Sc. (P.&O.T.) courses, and to the degree course in Nursing:*

Canada

The recognized Junior and Senior Matriculation or equivalent examinations of the various provinces.

Great Britain

In the General Certificate of Education, passes in five at Ordinary level and two appropriate subjects at Advanced level.

United States

Completion of one year in an approved college with a suitable syllabus and good grades.

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McGill University

Montreal

School Certificate Examinations

June and September 1958

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Institute of Education
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and School of Household Science,)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (available for distribution only to libraries and officials of certain institutions.)

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PUBLICATIONS

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The School Certificate

The Junior School Certificate examination is intended as a test for pupils who are completing their secondary school education.

The requirements for the certificate are given below, and also the requirements for admission to various courses at McGill University. It must be emphasized that these are not the same thing. To matriculate, i.e. to enter the University, a candidate must write and pass all the papers required by the faculty he wishes to enter and obtain the average mark the faculty has set. Thus, to enter the Faculty of Arts and Science an applicant must write ten papers (see page 511), although he may obtain the Junior School Certificate by writing eight papers only.

The Senior School Certificate examination is intended as a corresponding test for pupils who have done one year of academic work beyond that required for the Junior School Certificate.

The standard of the senior papers is approximately that of the First Year examinations in the Faculty of Arts and Science, but the certificate does not automatically confer the right to enter the Second Year of any university course.

For the conditions under which these certificates will admit into the various faculties of the University, see pages 511 to 514 and pages 533 to 536.

School Certificate Examinations

GENERAL REGULATIONS

JUNE AND SEPTEMBER EXAMINATIONS

The School Certificate examinations are held in June and September—in June at McGill University and also at local centres; in September, at McGill University only. The time-tables for these examinations are issued in February each year.

All inquiries relating to the examinations should be addressed to the Registrar of the University.

APPLICATION FORMS

Every candidate for examination is required to fill in an application form and return it to the Registrar's Office with the necessary fee before the 20th of May* or the 20th of August, for the June or September examinations respectively. After these dates applications may be accepted for the Montreal centre only. A special late fee of $1.00 is charged for such applications.

FEES

Junior Examination. The Junior Examination fee is $2.00 per paper with a maximum fee of fifteen dollars.

Senior Examination. The Senior Examination fee is $3.00 per paper with a maximum fee of twenty dollars.

REGULATIONS CONCERNING FEES

In centres outside Montreal candidates may be required to pay the whole or part of the expenses of invigilation.

A fee of $1.00 is charged for late applications (*see above*).

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*Candidates wishing to take the examinations in Oral French (*see pages 522 and 544*) at a centre outside Montreal must notify the Registrar in writing before the *first of April* in addition to making application on the usual forms. The University will then decide whether this examination can be held at the requested centres.

No refunds are paid to candidates after the last day of registration (20th May or 20th August), excepting only when a candidate is absent throughout the whole examination on account of illness, and a medical certificate to this effect is presented within four weeks of the close of the examination.

Fees paid for one examination cannot be credited towards a subsequent examination.

CERTIFICATES

The examinations may be taken in parts but the University will issue a School Certificate only on the results of examinations written within a period of sixteen months.

This rule also applies to the recognition of certificates granted by other examining bodies.

School Certificates are issued only to candidates who have passed the complete University School Certificate Examination.

TEXTBOOKS

JUNIOR SCHOOL CERTIFICATE

The University does not recommend or refer to specific textbooks in the syllabi of its Junior School Certificate Examinations, except in Mathematics. Set "texts", however, form an essential part of the language papers.

SENIOR SCHOOL CERTIFICATE

The University has also discontinued the recommendation of some of the Senior School Certificate textbooks, but in other subjects it is considered desirable that the work should follow closely that of the corresponding course in the first year of the Faculty of Arts and Science, and in such subjects the textbooks used in the University courses have been retained as Senior School Certificate textbooks for the present.

CONSULTATION WITH DEPARTMENTS

The University Departments concerned will be pleased to give school principals or specialist teachers advice concerning methods or books of reference, and to discuss problems that may arise in connection with the syllabi for either the Junior or the Senior School Certificate Examinations. The Registrar will be glad to arrange such conferences.

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PREVIOUS PAPERS

Books containing the examination papers set in either June or September of any one year may be obtained from the University Bookstore, at 25 cents a copy, so long as quantities last.

PUBLICATION OF RESULTS

Each candidate will receive a statement of his results as soon as they are ready. The certificates are sent to successful candidates a little later.

A list of the successful candidates is published in the Press. This list gives the class of the certificates obtained and any distinctions gained, but does not give any relative order of merit within the three classes.

The actual marks in each paper are sent to each candidate and are given on the back of the certificate but are not otherwise published.

Junior School Certificate

REQUIREMENTS FOR THE CERTIFICATE

To obtain a School Certificate a candidate must complete the requirements within a period of sixteen months. This allows four attempts in the June and September examinations of two successive years.

For first and second-class certificates two attempts only are allowed. For details, see page 510.

The pass mark in each paper is fifty per cent. To obtain the certificate a candidate must write eight papers chosen according to the regulations that follow and must *either* pass in every paper *or* obtain an average of at least sixty per cent in the eight papers with no individual mark below forty per cent.

COMPULSORY PAPERS

English Literature
English Composition
*French Written paper

OPTIONAL PAPERS

Five papers on optional subjects must be chosen from not less than two of the three groups below:

GROUP I

Algebra
Geometry
Chemistry
Physics
Botany
Biology
Intermediate Algebra
Trigonometry
Higher Arithmetic

GROUP II

French Oral examination
German (two papers)
Spanish (two papers)
Latin (two papers)
Greek (two papers)

*The University may, in special circumstances, permit candidates to substitute another modern language for French.

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GROUP III

General History
British History *or* Canadian History
Geography
Art
Music

A candidate may write more than eight papers—in fact ten are required for entrance to the University (see page 511)—but the certificate is awarded on the eight papers only. If a successful candidate writes more than eight papers, the class of the certificate he receives is reckoned on the subjects in which he has the highest marks. If such a candidate offers a subject, such as Latin, which has two papers, the marks in both these papers must either count towards the certificate or be neglected, i.e., a candidate cannot count towards his certificate the better of two Latin marks and the better of two German marks.

FIRST, SECOND, AND THIRD CLASS CERTIFICATES

Successful candidates are awarded a School Certificate of the first, second, or third class.

To obtain a first or second class certificate a candidate must complete the examination in not more than two attempts within a period of sixteen months and may write a part of the examination at each attempt. The marks obtained in his first attempt will always be counted towards a third class certificate, but will not be counted towards a first or second class certificate if he fails in more than one paper. To obtain a first or second class certificate such a student must rewrite the whole examination, and the certificate will be awarded solely on the marks obtained at the second attempt.

An average of 80% or over in all the papers required for the certificate entitles a candidate who has complied with the previous regulation to a first class certificate.

An average of 70% or over obtained under the same conditions, entitles a candidate to a second class certificate. Other successful candidates receive a third class certificate.

DISTINCTIONS

Candidates who obtain 80% or over in any subject are given distinction in this subject. Distinction is not given in *single* papers of Mathematics or the languages (including English).

ENTRANCE REQUIREMENTS OF FACULTIES ADMITTING STUDENTS ON THE BASIS OF THESE EXAMINATIONS
(JUNIOR MATRICULATION)

FACULTY OF ARTS AND SCIENCE

To qualify for admission to the First year of the Faculty of Arts and Science a candidate must pass (i.e. obtain 50%) within a period of sixteen months in each of the ten McGill School Certificate papers listed below, or their recognized equivalents. For entrance to the B.A. course an average mark of at least 65% must be obtained in ten papers including two in Latin or in Greek. If neither Latin or Greek is included, the average required is 70%.

For entrance to the First year of the B.Sc. course, the candidate must normally obtain an average of at least 70%. Special consideration may, however, be given to B.Sc. candidates who have secured an average of 65% to 70% and have shown distinction in subjects related to the course they wish to enter.

To enter the B.Com. course, a candidate must have the qualifications listed above for either the B.A. or the B.Sc. course.

1. ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.A. DEGREE

In the University's own examination ten papers are required.

No. of Papers	Subject
2	English
1	General History
2	Latin *or* Greek*
2	Written and Oral French *or* two papers in Greek *or* Latin (the one not already chosen), *or* German, *or* Spanish.
2	Elementary Algebra Elementary Geometry

*A candidate who has not taken Latin or Greek in the entrance examination may be admitted if he has the full B.Sc. qualifications with an average mark of at least 70%. If he is admitted he will be required to include two years of Latin or Greek in his B.A. programme.

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1	One of the following: Biology; Botany; Chemistry; Drawing; Geography; Physics; Music; Intermediate Algebra; Trigonometry; Canadian History *or* British History; a foreign language not already chosen (the average of the two foreign language papers is counted).

10 papers

2. ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.Sc. DEGREE

In the University's own examination ten papers are required.

No. of Papers	Subject
2	English
1	General History
2	Written *and* Oral French *or* two papers in German
2	Elementary Algebra Elementary Geometry
1	One of the following: Biology; Botany; Chemistry; Physics
2	*Either* Latin *or* Spanish *or* French *or* German (if not already chosen) *or* any two of the following papers not already chosen: (a) Intermediate Algebra (b) Trigonometry (c) Biology *or* Botany (Biology and Botany may not both be chosen) (d) Chemistry (e) Geography (f) Physics (g) British History *or* Canadian History (h) Music *or* Drawing (Music and Drawing may not both be chosen)

10 papers

3. ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.Com. DEGREE

For admission to the First year of the B.Com. course, beginning with the 1957-58 session, a candidate must have satisfied *either* the requirements for entrance to the B.A. *or* the requirements for entrance to the B.Sc. Course.

4. ADMISSION TO THE COURSES LEADING TO THE B.Ed. DEGREE

For admission to the First year of the B.Ed. course a candidate must fulfil the requirements for admission to the first year of the B.A. or the B.Sc. course. Students applying for admission by means of the Quebec High School Leaving examinations may offer Agriculture, Household Science, or North American Literature as optional papers.

Candidates for admission are also required to meet the Admissions Committee of the School for Teachers before their applications are approved.

5. ADMISSION TO THE COURSES LEADING TO THE B.Ed.(P.E.) DEGREE

For admission to the First year of the B.Ed.(P.E.) course a candidate must fulfil the requirements for admission to the first year of the B.A. or the B.Sc. course. Students applying for admission by means of the Quebec High School Leaving examinations may offer Agriculture, Household Science, or North American Literature as optional papers.

FACULTY OF ENGINEERING

ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.Eng. AND B.Arch. DEGREES

The subjects required for admission into the first year of the Faculty of Engineering are the same as those required for the first year of the B.Sc. courses. A general average of 60%, with not less than 60% in each paper in Mathematics, Physics, and Chemistry, is required.

FACULTY OF AGRICULTURE

1. ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.Sc. (Agr.) DEGREE

In the University's own examination ten papers are required.

No. of Papers	Subject
2	English
1	History
2	Latin *or* French *or* German *or* Spanish (French preferred)
2	Elementary Algebra Elementary Geometry
1	Physics *or* Chemistry *or* Biology
2	EITHER Latin *or* French *or* German *or* Spanish (if not already chosen); OR Any two of the following papers not already chosen: (a) Intermediate Algebra

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(b) Trigonometry
(c) *Botany *or* *Biology
(d) Chemistry
(e) Physics
(f) Drawing
(g) Geography
(h) British *or* Canadian History
(i) Music (Household Science candidates only. Music and Drawing may not both be chosen.)

10 papers

2. ADMISSION TO THE FIRST YEAR OF COURSES LEADING TO THE B.Sc. (H.Ec.) DEGREE

The requirements are those of the B.Sc. (Agr.) courses printed above, with the modifications noted.

PRESCRIPTION OF WORK IN EACH SUBJECT

For the examinations in June and September 1958

In all papers marks will be deducted for errors in spelling and grammar.

BIOLOGY

One examination paper.

All the subjects mentioned should be studied practically, both in the field and in the classroom. Vivaria and aquaria should be kept and plants should be grown in soil and water culture. Pupils should be encouraged to collect material and so add to the school museum. Typical preparations and demonstration dissections should be made. In small classes pupils might do some dissection personally. Simple experiments should be used wherever possible. The use of a hand lens is essential for every pupil and a microscope should be available.

I. *Plants: Algae:* one unicellular type, and either Spirogyra or Ulothrix. *Fungi:* Bacteria, Yeast, Bread mould, Wheat rust, a Mushroom. *Lichens:* general study only. *Bryophyta:* Marchantia or any one Moss. *Pteridophyta:* a Fern. *Gymnosperms:* a Conifer. *Angiosperms:* one herbaceous monocotyledon, one herbaceous dicotyledon, one dicotyledonous tree.

*Botany and Biology may not both be chosen.

The following points should be considered in studying the above: adaptation to environment, structure, life-history, physiology, seasonal changes.

II. *Animals: Protozoa:* Amoeba, Paramoecium, Plasmodium. *Coelenterata:* Hydra. *Platyhelminthes:* Tape worm. *Annelida:* Earthworm. *Arthropoda:* Crayfish or Grasshopper. *Pisces:* Perch or any other fish. *Amphibia:* Frog. *Reptilia and Aves:* the external characters of any one reptile and any one bird. *Mammal:* Rabbit or Rat.

The following points should be considered in studying the above: adaptation to environment, structure, physiology (including locomotion, nutrition, circulation, respiration, secretion, excretion, nerve control, action of hormones, growth), reproduction, seasonal changes.

III. *General:* The general structure of a plant cell and of an animal cell as seen in Spirogyra and Amoeba. Euglena as illustrating both plant and animal characters. The properties of living matter. The differences between animals and plants.

Elementary outlines of the principles of heredity and variation among plants and animals.

Simple evidence of the theory of evolution.

IV. *Field Natural History:* Trees and animals of the neighbourhood. Relation of plants and animals to their physical environment and to one another in *one* type of community, such as woodland, pasture, cultivated land, swamp, or an aquatic community. The dominant plants and animals of this community.

V. A general study of the interrelations of plants and animals with man, and of the importance of plants and animals as sources of food, shelter, clothing, and commercial products, with special reference to the types studied in sections I and II.

Suggested topics:

Plants: Green plants as basic food supply. Plant geography and plant industries of North America in relation to climate. Organic decay and the carbon and nitrogen cycles. Control of pathogenic bacteria and fungi.

Animals: Protozoan and other parasites as causal agents of disease. Insects, useful and injurious, in relation to human health, farm stock, crops, and forests. The place of birds in nature. Food animals. Fur-bearing animals in relation to climate.

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BOTANY

One examination paper.

All the subjects mentioned should be studied practically. Aquaria should be kept, plants grown in soil and water culture, and simple physiological experiments carried out. The use of a hand lens is essential for every pupil and a microscope should be available.

The items of the syllabus may be studied in any suitable order.

I. Organs and Cells

The general external characters and structure of a flowering plant considered in relation to its mode of life.

Structure of a plant cell; properties of protoplasm; types of cell.

II. Types and Classification

The general structure, life history, relation to environment, and broad classification of the following types:

Thallophyta: Algae—Oscillatoria, Protococcus, Spirogyra, Oedogonium, Fucus, or Laminaria.

Fungi—Bacteria, Yeast, Mould, Mushroom, other Fungi, including at least one parasitic form.

Lichens—general.

Bryophyta: A Liverwort, a Moss.

Pteridophyta: A Fern, Equisetum, Selaginella.

Spermatophyta: Gymnosperms—one Conifer type and general characters of other local species.

Angiosperms—a Monocotyledon; Dicotyledons—herbaceous and tree types. General structure of flower, fruit, and seed. Comparison with homologous structures of preceding types.

Leading characters of the groups listed above. Trends in the evolution of a many celled body and of sexual reproduction as illustrated by the algal types, and of alternation of generations and adaptation to land life as displayed by the higher forms.

General characteristics and common plants of the following families of flowering plants: Liliaceae, Gramineae, Orchidaceae, Ranunculaceae, Rosaceae, Leguminosae, Umbelliferae, Solanaceae, Labiatae, Compositae.

III. Physiology and Histology

Elements of the microscopic structure of a typical leaf, root, herbaceous stem, and woody stem studied in relation to the functions of the organ and its parts.

Essentials of nutrition (photosynthesis, mineral nutrition, storage of foods, special modes of feeding), respiration, water relations, growth, tropisms, and reproduction. The organism as a whole. Seasonal changes in perennial herbs and trees.

IV. Field Natural History

Common trees and some other plants of the neighbourhood. Elements of the ecology of at least one local area, such as wood, meadow, swamp, or seashore. Adaptation to environment. Modes of pollination and of distribution and germination of seeds.

V. Heredity

Elementary outline of the principles of heredity and variation as applied to plants.

VI. Relation to Man

Green plants as the basic food supply. Man's staple food plants. Nature and source of other important plant products, e.g., lumber, fibres, paper, rubber. Useful bacteria and fungi; organic decay, carbon and nitrogen cycle. Pathogenic bacteria and fungi and their control. Main types of vegetation found in North America, with emphasis on Canada; their relation to climate and to human activities.

CHEMISTRY

One examination paper.

The proficiency in Chemistry will be examined on evidence of an elementary knowledge of:

The properties of matter as required to establish the Molecular Theory of Gases, the Atomic Theory, the Theory of Ionization, and the Periodic Law.

The composition, physical properties, and chemical transformations of common materials such as the atmosphere, natural waters, common minerals and ores, metals and alloys, foodstuffs, and textiles.

The preparation and properties of the more common non-metallic elements: Hydrogen, Carbon, Nitrogen, Oxygen, Silicon, Sulphur, and Chlorine together with their simple compounds of economic importance.

The preparation and properties of the more common metallic elements: Sodium, Calcium, Magnesium, Aluminium, Iron, Copper, and Silver, together with their simple compounds of economic importance.

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The principal chemical industries including the fixation of nitrogen, the utilization of brines as in the preparation of soda ash, sodium hydroxide and chlorine, the distillation of petroleum products, and the utilization of wood cellulose.

The nature of chemical reaction including the factors affecting the rate of chemical reaction, exothermic and endothermic reactions, the principle of mass action, the nature of oxidation and reduction as exemplified by combustion and the winning of metals.

An elementary conception of valence in the formation of electrovalent and covalent compounds.

DRAWING

One examination paper.

Candidates must take two parts. They may take:

(a) Parts I and II

or (b) Parts III and IV

or (c) *one* of III and IV and *one* of V and VI.

PART I

Elementary problems in the graphic geometry of the circle, ellipse, and plane rectilinear figures.

PART II

(*a*) Reproduce freehand ornament designs from flat copies.

(*b*) Make drawings, by freehand, or otherwise, of objects described, illustrating the principles of perspective.

(*c*) Make outline drawings of objects placed at a short distance.

PART III

Make a drawing in light and shade, with charcoal or pencil, of a plaster cast or a still life group.

PART IV

Make water colour drawings of still life groups.

PART V—COMMERCIAL ART

(*a*) Lettering, including Roman and Gothic.

(*b*) Posters, Magazine Page Advertisements.

(*c*) Illustration, in colour and otherwise.

PART VI—CRAFT DESIGN

(*a*) Principles of ornament and decoration.

(*b*) Historic Styles.

(*c*) Themes, compositions, or designs, founded on flowering plants, birds, fishes, butterflies, animals, and humans, for specific purposes, such as: wall papers, embroideries, silver and copper work, jewellery, stained glass, decoration of pottery, cups and saucers, etc.

ENGLISH

Two examination papers: one in Composition, and one in Literature.

COMPOSITION

No special readings are required for the Composition paper. Candidates will be asked to write on a wide choice of general subjects and the paper will include at least one question in which the student is addressing a particular audience. There may also be questions on errors of grammar, spelling, etc.

LITERATURE

For critical study:

1. Poets:

1958 Coleridge, Wordsworth, Browning, Arnold, as in Dilworth *Nineteenth Century Poetry*, or *Centuries' Poetry Volume III* and *Volume IV* (Penguin)

1959 Byron, Shelley, Keats, Tennyson, as represented by the following poems:

Byron—*On a Distant View of Harrow, Lachin Y gair, Stanzas to Augusta* ("Though the day of my destiny's over"), *Song from Canto I of Childe Harold's Pilgrimage, Canto III, Stanzas II-XXXIII, inclusive; The Siege of Corinth, Stanza XI; The Giaour, II, 68-133* ("He who hath bent him o'er the dead . . . the mountains of their native land"), *Don Juan, Song from Canto III* ("The isles of Greece!"), *Sonnet on Chillon; On This Day I Complete My Thirty-sixth Year.*

Shelley—*To a Skylark; To —* ("Music, when soft voices die"); *The Cloud; Sonnet—Ozymandias; Stanzas, written in dejection near Naples; Arethusa; Ode to the West Wind; To —* ("One word is too often profaned"); *The Question; A Summer Evening Churchyard, Lechlade; To Night; Dirge for the Year; Choruses from Hellas* ("In the

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great morning of the world... Share her glory, or a grave"; "Worlds on worlds are rolling ever"; "The world's great age begins anew"); *Lines: When the Lamp is Shattered.*

Keats—*Lines on the Mermaid Tavern; On First Looking into Chapman's Homer; Ode to a Nightingale; Ode on a Grecian Urn; To Autumn; Stanzas* ("In a drear-nighted December"); *La Belle Dame sans Merci; The Eve of St. Agnes; A Prophecy.*

Tennyson—*To The Queen* ("Revered, beloved"); *The Poet; A Dream of Fair Women; You Ask Me Why; Hands All Round; Morte D'Arthur* (ll. 1-272); *Sir Galahad; Ulysses; Break, Break, Break; Songs from The Princess* ("Sweet and low"; The splendour falls"; "Home they brought her warrior"; "Tears, idle tears"); *In Memoriam* ("Prelude"); *The Eagle.*

1960 Coleridge, Wordsworth, Browning, Arnold as represented by the following poems:

Coleridge—*The Rime of the Ancient Mariner; Kubla Khan; Frost at Midnight; Hunting Song from Zapolya; Humility the Mother of Charity; Epitaph* (inscribed upon his tombstone).

Wordsworth—*The Prelude, Book I, ll. 301-463; Lines* (composed above Tintern Abbey); *The Rainbow; Ode* (Intimations of Immortality); *Lines Written in Early Spring; To My Sister; She Dwelt Among the Untrodden Ways; I Travelled Among Unknown Men; Three Years She Grew; A Slumber Did My Spirit Seal; She Was a Phantom of Delight; The Daffodils; The Solitary Reaper; Sonnets* ("Nuns fret not"; "It is a beauteous evening"; "The world is too much with us"; "Earth has not anything to show more fair"; "Once did she hold the gorgeous east"; "Two Voices are there").

Browning—*Songs from Pippa Passes* ("The year's at the spring"; "Give her but a least excuse"); *Home Thoughts, From Abroad; De Gustibus; The Italian in England; Incident of the French Camp; Hervé Riel; The Two Poets of Croisic; The Guardian Angel; Andrea Del Sarto; The Lost Leader; Asolando.*

Arnold—*The Forsaken Merman, Shapespeare, Memorial Verses, Self Dependence, The Future, Philomela, To Marguerite* ("yes, in the sea of life enisled"), *Dover Beach, Obermann Once More, Rugby Chapel.*

2. Shakespeare:

1958 *Henry IV Part I* or *The Tempest*

1959 *Romeo and Juliet or Macbeth*

1960 *Julius Ceasar* or *Hamlet*

For general reading:

3. Novels:

1958 A novel of Dickens or a novel of Austen
and
Bennett, *Old Wives Tale* or Roberts, *Northwest Passage*

1959 A novel of Thackeray or a novel of George Eliot
and
Wells, *Mr. Polly* or Cather, *Shadows on the Rock*

1960 A novel of Scott or a novel of Hardy
and
Conrad, *Victory* or Maugham, *Of Human Bondage*

4. Drama:

1958 Shakespeare, *As You Like It* or a play of Galsworthy

1959 Shakespeare, *Twelfth Night* or a play of Goldsmith

1960 Shakespeare, *Henry V* or a play of Shaw

5. Essays:

At least *two* essays from any *five* of the following: Bacon, Addison, Steele, Goldsmith, Lamb, Hazlett, Hunt, Stevenson

Suggested Anthologies:

Peacock, *Selected English Essays* (Oxford)

Williams, *A Book of English Essays* (Pelican)

6. Twentieth Century Literature:

A novel *or* play *or* biography *or* selection of short stories, poems, plays, essays—written and published since the year 1900

FRENCH—One written paper and one oral examination.

WRITTEN PAPER

This will consist of four parts, each carrying 25 marks.

A. *French Essay*

A short essay in French (100-150 words) on a topic of general interest selected by the candidate from a list printed on the examination paper.

B. *French Unseen*

Translation into French of a short English passage (approx. 100 words) which may be a narrative, a conversation, or a description.

C. *French Grammar*

Translation into French of approximately a dozen short English sentences, each illustrating a point of grammar.

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D. *French Texts*

Four or five questions in French to be answered in French at some length on a text appointed for the year.

Text for 1958—Daudet, *Lettres de Mon Moulin* (Heath).

Text for 1959—Maupassant, *Eight Short Stories* (Ed.White-Heath).

ORAL EXAMINATION

The examinations will be held at different centres on dates selected by the Matriculation Board between 1 May and 15th May. The Board cannot guarantee to provide oral examinations for candidates who do not register before the 1st of April.

The oral examination will consist of three tests.

A. *Oral Comprehension Test* (20%)

The examiner will read out twice to a group of candidates a French passage of not more than 120 words; then he will ask four or five questions in French on that passage. Candidates will be required to answer these questions *in writing* and *in English* on the spot.

B. *Pronunciation Test* (20%)

Each candidate will be required to read aloud a passage of not more than 200 words selected by the examiner from any of the books the candidate has read for the examination.

C. *Fluency Test* (60%)

A conversation between candidate and examiner in the course of which students will have to answer questions on the contents of *two* prepared texts selected from the following:

1. Dumas: Le collier de la Reine (Bovée et Guinard)
2. Hugo: Les Misérables (Super) (Heath)
3. Daudet: Tartarin de Tarascon (Hawkins) (Heath)
4. Deval: Tovaritch (Heath)
5. Fite: Four contemporary one act plays (Heath)
6. Mérimée: Colomba (Robert Humphreys) (Heath)
7. Pagnol: Topaze (Heath)
8. Simenon: Le client le plus obstiné du monde (McIntosh)
9. Acremant: Ces dames aux chapeaux verts (Oliver and Boyd)
10. Fauchois: Prenez garde à la peinture (Heath)

GEOGRAPHY

One examination paper.

Geography is taken to be primarily the study of the earth as the home of differentiated communities and cultures; this calls for a clear understanding of the ways in which men have shaped the habitable parts of the environment to their own ends and have themselves been influenced in the process. It also calls for an examination of the functional role of land forms, rivers, climates, vegetation, etc., in guiding human activities.

It is assumed that candidates will know how to handle topographic, climatic, and distributional maps, and that they will be able to draw simple sketch maps (e.g. of their home area). They may be asked to insert data on a base map of a given country or continent, and to describe and analyze the geographical features of ground and air photographs.

A. *General Geography* (one third of the course)

A study of the world in outline, with special reference to the following subjects:

Size, shape, and movements of the earth.
Latitude and longitude and time zones.
Distribution of land and water.
Tidal phenomena and ocean currents.
Land forms and the agencies modifying them.
Configuration and surface characteristics of the continents.
Factors determining climates: the broad distribution of winds, temperature, rainfall, vegetation, soils and animal life.
Major natural regions and their characteristic human economies.

B. *Regional Geography* (one third of the course)

Canada and the United States in considerable detail. Emphasis should be placed on the geographical factors influencing their settlement and subsequent economic development.

C. *Maps and Aerial Photographs* (one third of the course)

The elements of map-making, map-reading and air photo interpretation. Candidates are expected to show familiarity with the topographical maps produced by The Topographic Survey of the Department of Mines and Technical Surveys, Ottawa.

Suggested Texts and Atlases: At Home on Our Earth—The United States and the British Commonwealth, G. Whipple and P. E. James (Macmillan Co.); *The Geography of Canada*, J. L. Robinson (Longmans, Green & Co.); *Earth Science—The World We Live In*, S. N. Namowitz and D. B. Stone (Van Nostrand Co.); *Canadian Social Studies Atlas* (Dent & Sons); *Goode's School Atlas* (Rand McNally).

GERMAN

Two examination papers: one on prescribed texts, and one on grammar and translation of continuous passages from German into English and from English into German.

B.A.

Texts (Translation and grammatical study): Guerber, Märchen und Erzählungen Vol. 1. (Heath), Numbers 1, 2, 5, 6, 7, 8, 11, 12, 13, 14, 15; Erich Kästner; Georg und die Zurischenfälle (Clarke, Irwin & Co. Ltd., Toronto).

Grammar: A thorough knowledge of German accidence and syntax.

Translation at Sight from English into German and German into English of easy prose passages.

B.Sc.

Texts (Translation and grammatical study): Guerber, Märchen und Erzählungen Vol. 1, (Heath), Numbers 1, 2, 5, 6, 7, 8, 11, 12, 13, 14, 15; and Fiedler and Sandbach, A first German Course for Science Students (Oxford University Press).

Grammar: A knowledge of German accidence and syntax.

Translation at Sight of sentences from English to German and of easy prose passages from German into English.

GREEK

Two examination papers: one on Colson and Grammar; the other on Allen and Composition.

Texts: Colson, Greek Reader, Parts III, IV, V (Macmillan); Allen, The First Year of Greek, Lessons 1-34 inclusive, with the Exercises belonging to these lessons (Macmillan).

Grammar: Knowledge of grammar will be tested by translation and by grammatical questions based on the specified texts.

HISTORY

One examination paper is offered in each of the three following fields:

(*a*) *General History from 1600-1939*

(*b*) *British History from 1714-1939*

(*c*) *The History of Canada with related topics in the History of the United States from the age of discovery until 1939.*

A Guide to Reading containing references and suggestions for teachers and students who are preparing for these History papers may be obtained from the Registrar's Office.

These lists are intended as a bibliographical aid for teachers who may concentrate on certain topics in which they are especially interested or which they think particularly desirable for their students.

The examination paper will give a wide choice of questions and will be so divided that a candidate may not pass by concentrating on one particular aspect of the work.

As the General History paper is primarily a test of knowledge of European History, questions dealing with such things as the Far East, Africa, England, will only be included if they impinge on European History.

The paper in Canadian History will give a wide choice of questions and will give the candidate an opportunity to relate his knowledge of Geography to that of History.

LATIN

Two examination papers: one on the Prose authors and Composition; the other on the Poets, Sight Translation, and the textbook *Everyday Life in Rome.*

Texts (Translation and Grammatical study)

Bonney and Niddrie, *Latin Prose and Poetry* (Ginn)

1958 and 1959:

Virgil, Part 1: IV – IX; Part 2: Georgics II, V; Aeneid III, IV
Horace IV, V, VIII, IX
Catullus II, VII

1958 only:

Cicero III, V and Letters III, V, VI
Nepos III, IV, V, VI, IX, XI
Livy I, VII, VIII
Pliny XI, XIII
Ovid I, II, VI, IX, X

1959 only:

Cicero I, VI and Letters III, V
Nepos VII, VIII, IX
Livy V, IX, X, XI, XII
Pliny XI, XII
Ovid I, V, IX

Treble and King, *Every-day Life in Rome* (Oxford)

Knowledge of grammar will be tested by translation and composition, and by questions in grammar based on the specified texts.

Translation at Sight from Latin into English (with the aid of a vocabulary of unfamiliar words).

Composition. Translation into Latin of detached sentences. The vocabulary is based upon the texts studied.

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(Composition questions will not deal with subordinate clauses in indirect narration; temporal clauses with *dum, donec,* and *quoad, antequam* and *priusquam* where these require the subjunctive; *quin* and *quominus* clauses; causal and concessive clauses requiring the subjunctive.)

NOTE—The "Roman" method of pronouncing Latin is recommended.

MATHEMATICS

ELEMENTARY MATHEMATICS

HIGHER ARITHMETIC

One examination paper.

1. Addition, subtraction, multiplication, and division of integers. Factors, highest common factor, and least common multiple.

2. Properties of vulgar fractions including addition, subtraction, multiplication, and division. Complex fractions.

3. Properties of decimals including the conversion of vulgar fractions into decimals and vice versa. Extraction of square root. Contracted multiplication and division of decimals.

4. Simple properties of ratio and proportion. The unitary method.

5. Simple properties of percentages, e.g., changing a fraction to a per cent and vice versa, finding what per cent one number is of another.

6. Units of measurement and changing from one unit to another. A knowledge of the standard tables of weights and measures will be expected, e.g., length, area, volume, capacity (liquid and dry), apothecaries (fluid and weight), avoirdupois and troy weight, time, English and Canadian monetary systems. The metric system.

7. Simple mensuration of the rectangle, triangle, parallelogram, trapezoid, circle, cylinder, cone, and pyramid.

8. The construction and interpretation of simple graphic and other representative diagrams of concrete numbers

Candidates will be expected to apply the preceding principles to the solution of simple problems such as the making of solutions and preparation of dosages, the relation between pressure and temperature of a gas, the comparison between Fahrenheit and Centigrade thermometer scales etc.

Students should be taught to apply rough approximations, such as

$$\frac{3.1416 \times \sqrt{64.37}}{\sqrt[3]{126}} \simeq \frac{3 \times 8}{5} \simeq 5$$

to check the accuracy of their work, and they should also be shown how to use tables of squares, square roots, cubes, and cube roots of integers and decimals. A knowledge of circulating decimals will not be required.

High School Arithmetic by A. T. Batstone, E. T. Alexander, J. A. Chown, published by The Ryerson Press, Toronto, will be found useful.

ELEMENTARY ALGEBRA

One examination paper.

Elementary rules, involution, evolution, fractions, indices, surds, simple and quadratic equations involving one or more unknown quantities, simple graphs, ratio and proportion, as in High School Algebra by J. T. Crawford (Revised Edition, 1940) published by Macmillan and Co., pp. 1-320, or Intermediate Algebra for College Students by Thurman S. Peterson (Revised Edition), published by Harper and Brothers, New York, pp. 1-279, (omitting page 207 and pp. 261-267) or similar text-books.

ELEMENTARY GEOMETRY

One examination paper.

The paper will contain questions on practical and on theoretical geometry.

In practical geometry, where the validity of a construction is not obvious, the reasoning by which it is justified may be required. Every candidate must provide himself with a ruler graduated in inches and tenths of an inch, and in centimeters and millimeters, a set square, a protractor, compasses, and a hard pencil. All figures should be drawn accurately.

The questions on theoretical geometry will consist of theorems contained in the textbook prescribed, together with questions upon these theorems, easy deductions from them, and arithmetical illustrations. Any proof of a proposition will be accepted if it forms part of a systematic treatment of the subject.

In the proof of theorems and deductions from them, the use of hypothetical constructions will be permitted. Proofs which are only applicable to commensurable magnitudes will be accepted.

Textbook recommended:—Geometry for High Schools by W. J. Loughheed and J. G. Workman, published by the Macmillan Co. of Canada (1941), omitting pp. 223-224, 242, 308-314, 323-329, or the same subject matter in Plane Geometry (Revised Canadian Edition) by H. S. Hall and F. H. Stevens, published by the Macmillan Company of Canada, or similar text-books.

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INTERMEDIATE MATHEMATICS

Four-figure mathematical tables will be provided.

INTERMEDIATE ALGEBRA

One examination paper.

Arithmetic, geometric, and harmonic progressions, variation, permutations and combinations, binomial theorem, logarithms, number system, theory of quadratic equations, as in Intermediate Algebra by H. Tate, published by Sir Isaac Pitman and Son, Toronto, or as in similar textbooks.

INTERMEDIATE TRIGONOMETRY

One examination paper.

Measurement of angles, radian measure, trigonometrical ratios of functions of one angle, of two angles, and of a multiple angle, relations between the sides and angles of a triangle, easy problems on heights and distances, easy trigonometrical equations, as in Elementary Trigonometry by H. S. Hall and S. R. Knight, adapted for use in Canadian Schools (1940 edition), published by the Macmillan Company of Canada, Chaps. I to XI inclusive, omitting paragraph 113a, or as in similar textbooks.

MUSIC

The Grade 9 Certificate of McGill University in practical subjects and the Grade 9 Certificate in theoretical. (Details will be found in the Announcement of the Conservatorium of Music.)

PHYSICS

One examination paper.

The following are the main topics required in Mechanics, Heat, Electricity, and Magnetism.

Mechanics

Measurements of length, area, volume, mass, and weight. The beam and spring balances.

Uniform and uniformly accelerated motion in a straight line; Newton's laws of motion and simple applications of them. Motion under gravity; the law of gravitation. Moments of forces; composition of parallel forces, equilibrium of forces (parallelogram and triangle laws); centre of gravity,

Work, energy, power. Sliding friction. Mechanical advantage of a machine; levers, pulleys, wheel and axle, differential pulley and differential wheel and axle, inclined plane, wedge, screw; efficiency of a machine. Density and specific gravity. Fluid pressure, Pascal's law; hydraulic press. Relation between pressure and depth. Buoyancy; Archimedes Principle; floating bodies. Measurement of specific gravity of solids and liquids; specific gravity bottle, hydrometer.

Weight and pressure of air; barometers, determination of altitude, weather forecasting, Boyle's Law. Air pumps and compressors. Pressure gauge. Suction and force pumps, siphon.

Surface tension and capillarity (qualitative treatment).

Heat

Elementary ideas of the structure of matter and kinetic theory of gases. Sources of heat. Temperature; construction of a liquid in glass thermometer, fixed points, graduation; Centigrade and Fahrenheit scales. Expansion of solids, coefficient of linear expansion; expansion of liquids, anomalous expansion of water. Expansion of gases, Charles' Law, absolute temperature; the gas equation.

Heat quantity and its measurement in calories and B.T.U., specific heat, capacity for heat; calorimetry by method of mixtures. Change of state; fusion and solidification; effect of pressure on melting point; heat of fusion; freezing mixtures; vaporization, rate of evaporation, saturated vapour, boiling, effect of pressure change (including altitude); heat of vaporization of water; cooling by evaporation. Condensation of water in the air; dew point; relative humidity, wet and dry bulb hygrometer, humidity and health; atmospheric phenomena—fog, clouds, dew, frost, rain, snow, hail.

Mechanical equivalent of heat; steam engine.

Conduction of heat, solids, liquids, and gases; convection currents in fluids, winds; radiant heat, emission and absorption; heating of buildings, ventilation; refrigeration.

Magnetism

Natural and manufactured magnets; polarity, attraction and repulsion. Magnetic induction, magnetic field. Molecular theory of magnetism. The earth as a magnet; compass, declination, dip.

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Static Electricity

Electrification by friction, attraction and repulsion, two kinds of electrification; conductors and insulators; electrons; gold leaf electroscope. Electrification by contact and by induction; testing charge on a body; induced charge equal to inducing charge; charges by friction equal and opposite; charges reside on outside of empty hollow conductor. Action of points, lightning rods. Potential, capacity, condensers, Leyden jars.

Current Electricity

Magnetization of steel by discharge of Leyden jars.

Voltaic cell, electric circuit, series and parallel arrangements. The magnetic, chemical, and thermal effects of a current; Oersted's experiment, magnetic field due to a straight wire, circular wire, and helix; polarity. Action of one current on another, Ampère's Laws, tangent and moving coil galvanometers. Electromagnet. Electric bell and telegraph. Electrolysis of water, laws of electrolysis, coulomb, measurement of current; electroplating. Voltaic cell, chemical action, electromotive force, polarization, local action. Leclanché and dry cells. Storage cells, lead accumulator. Heat developed by current; electric iron, fuses, incandescent lamp and arc light. Ohm's Law; practical units, ampere, volt, ohm; fall of potential in circuit, method of substitution for measuring resistance. Law of dependence of resistance on length and cross-section of cylinder. Work done in a circuit, rate of working in circuit and in lamp. Ammeters and voltmeters.

Electromagnetic induction; Faraday's experiments. Induction coil. Dynamo, armature, field magnets, commutator for D.C. electric motor, transformer, telephone.

SPANISH

Two examination papers.

One paper will contain questions on grammar, and sentences to be translated from English into Spanish.

The second paper will contain questions on the set text, including translation and comments on the grammar and contents. It will also contain the translation into English of an unseen Spanish passage, and the translation into Spanish of an unseen English passage.

Text prescribed: John W. Crow, *Spanish American Life* (Holt).

EXAMINATIONS RECOGNIZED FOR ADMISSION TO THE UNIVERSITY

McGill University recognizes a number of public examinations as conferring, in certain circumstances, the equivalent of Junior or Senior Matriculation standing for admission to the Faculty of Arts and Science, or the Faculty of Engineering, or other faculties and schools.

Admission to the various faculties is based upon standards set from time to time by each faculty. The Admissions Committees require generally that:

(1) The certificate has been obtained under no easier conditions than those of McGill Matriculation,

(2) The subjects of the examination and the school course followed are those the University requires,

(3) The school records and confidential reports are satisfactory.

Candidates who wish to enter by certificate should in no circumstances come to the University without having obtained an official acceptance of their application.

The following certificates will be considered *on their merits* towards meeting the University requirements for the equivalent of Junior Matriculation. It should be particularly noted that possession of a certificate which is listed does not guarantee acceptance.

Candidates for admission offering certificates which are not a full equivalent may be required to pass one or more McGill papers.

PROVINCE OF QUEBEC
The High School Leaving Certificate
The Catholic High School Leaving Certificate

PROVINCE OF ONTARIO
Ontario Secondary School Graduation Diploma with four options

PROVINCE OF NEW BRUNSWICK
Junior Matriculation

PROVINCE OF NOVA SCOTIA
Grade XI Certificate

PROVINCE OF PRINCE EDWARD ISLAND
Second Year Certificate of Prince of Wales College

PROVINCE OF BRITISH COLUMBIA
Junior Matriculation

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PROVINCE OF MANITOBA

Grade XI Certificate

PROVINCES OF ALBERTA AND SASKATCHEWAN

Grade XI

NEWFOUNDLAND

Grade XI Certificate

GREAT BRITAIN

In the General Certificate of Education, passes at the ordinary level in five subjects (other than Religious Knowledge) will be the normal standard for admission. The various faculties specify which subjects must have been passed.

UNITED STATES

1. McGill University recognizes the examinations conducted by the College Entrance Examination Board, P.O. Box 592, Princeton, New Jersey. All candidates from the United States must write these tests.

2. Applicants for admission should preferably write the January or the March tests, taking the Scholastic Aptitude Test and three Achievement Tests. The Achievement Tests should be chosen in consultation with the applicant's school Principal. Further particulars are obtainable from the Registrar's Office.

3. In addition, applicants must submit their complete High School record and should arrange for a confidential letter from the school Principal or other competent officer to be mailed directly to the University.

MISCELLANEOUS

Other certificates, such as those issued by universities or recognized public Examining Boards, will be judged on their merits and accepted insofar as they meet the entrance requirements.

Senior School Certificate

REQUIREMENTS FOR THE CERTIFICATE

To obtain the Senior School Certificate the candidate must pass in English Literature and English Composition and in at least three of the following subjects:

Accountancy	Greek
Biology	History
Chemistry	Latin
Drawing	Mathematics
French	Music
Geography	Spanish
German	Physics

To satisfy the examiners in a language the candidate must pass in each of the two papers in this language.

To satisfy the examiners in Mathematics the candidate must write and pass at least two of the three papers offered in this subject.

PASS MARK

The pass mark in each paper is fifty percent.

CLASSES OF CERTIFICATE

Successful candidates are awarded a Senior School Certificate of the first, second, or third class.

To obtain a first or second class certificate a candidate must complete the examination in not more than two attempts within a period of sixteen months and may write a part of the examination at each attempt. The marks obtained in his first attempt will always be counted towards a third class certificate, but will not be counted towards a first or second class certificate if he fails in more than one paper. To obtain a first or second class certificate such a student must rewrite the whole examination, and the certificate will be awarded solely on the marks obtained at the second attempt.

An average of 80% or over in all the papers required for the certificate entitles the candidate who has complied with the previous regulation to a first class certificate.

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An average of 70% or over obtained under the same conditions, entitles a candidate to a second class certificate. Other successful candidates receive a third class certificate.

DISTINCTION

Candidates who obtain 80% or over in any subject are given distinction in this subject. Distinction is not given in *single* papers of Mathematics or the languages (including English).

UNIVERSITY ENTRANCE REQUIREMENTS (SENIOR MATRICULATION)

Under certain conditions, a candidate may qualify for admission into the Second year of the Faculty of Arts and Science or the Faculty of Engineering by writing and passing the required papers of the Senior School Certificate Examination.

FACULTY OF ARTS AND SCIENCE

A candidate may be considered for admission to the second year of the Faculty of Arts and Science if he has passed in the appropriate ten papers of the McGill Junior School Certificate Examination, or their recognized equivalents, and if he has passed within a period of sixteen months in the papers of the McGill Senior School Certificate Examination, or their recognized equivalents, with an average of at least 70% on the examination as a whole. Special consideration may, however, be given to candidates who have received an average of 65 to 70% if they have obtained high standing in all such subjects as they have taken in the examination which are appropriate to the degree course which they wish to enter. These are: *in Arts*—English, Languages, History; *in Science*—Mathematics, Physics, Chemistry, Biological Science; *in Commerce*—English, History, Mathematics.

Only in exceptional circumstances may a student who has not qualified for entrance to the first year through Junior Matriculation be admitted to the Second year by Senior Matriculation alone.

ADMISSION TO THE SECOND YEAR OF COURSES LEADING TO THE B.A. DEGREE

English
Latin or Greek
Mathematics (*see following paragraph and also footnote on page 535*)

Any two of the following:—

1. History
2. Latin *or* Greek (the one not already chosen)
3. French
4. German
5. Spanish
6. Science (Physics *or* Chemistry *or* Biology)
7. Music
8. Geography

Candidates for admission to the University in the Second year of the B.A. course may offer, in place of Mathematics, another Senior Matriculation subject in which they have shown marked proficiency and which is in accordance with the trend of the studies which they are preparing to pursue. In general, however, students are advised to offer Mathematics. It is a pre-requisite to all advanced courses in the Science division and must be taken if either Physics or Chemistry is included in the Senior Matriculation programme. It is also a required subject for students who intend to take courses in the Social Sciences, excluding History and Political Science. For this reason, unless a student intends to honour in one of the Humanities (English, Languages, Philosophy) or in Political Science or in History, Mathematics is obligatory. In any case, no student will be permitted to offer another subject in place of Mathematics unless he or she has passed in the Elementary Mathematics of the Junior School Certificate, or their equivalent, and has achieved at least 75% in the Junior School Certificate examinations in History, or a Modern Language, or Classics. Only a subject in which this 75% is obtained may be substituted for Mathematics. If they intend to pursue studies in History, Philosophy, or Political Science, candidates are expected to choose History as their substitute.

Candidates who wish to enter the Faculty of Medicine at the end of the B.A. course must take Mathematics.

ADMISSION TO THE SECOND YEAR OF COURSES LEADING TO THE B.Sc. DEGREE

English
Mathematics*

*Two papers: one in Algebra and one in Trigonometry. Candidates who have passed in School Certificate Trigonometry may write Co-ordinate Geometry instead of Senior Trigonometry. The paper in Co-ordinate Geometry, written in addition to the other two, if necessary, is strongly recommended for candidates who intend to study for Honours in Mathematics, Physics, or Chemistry.

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Physics

Chemistry

French *or* German* *or* Spanish *or* Latin *or* Greek *or* History *or* Biology *or* Geography

ADMISSION TO THE SECOND YEAR OF COURSES LEADING TO THE B.Com. DEGREE

English

Mathematics**

Accountancy***

A modern foreign language

History *or* a second foreign language *or* a Science (including Geography)

ADMISSION TO THE SECOND YEAR OF COURSES LEADING TO THE B.Phys.Ed. DEGREE

Candidates must fulfil the requirements for admission to the Second year of the B.Sc. course.

FACULTY OF ENGINEERING

ADMISSION TO THE SECOND YEAR OF COURSES LEADING TO THE B.Eng. AND B.Arch. DEGREES

English

Mathematics (all three papers are required)

Physics

Chemistry

French *or* German* *or* Spanish *or* Latin *or* Greek *or* History *or* Biology *or* Geography.

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*A candidate who has passed the two papers in Junior French may satisfy the Senior B.Sc. or B.Eng. German requirements by passing the Junior examination in German.

**Algebra and Trigonometry. However, a candidate who has passed in School Certificate Trigonometry may write Co-ordinate Geometry instead of Senior Trigonometry.

***Applications of students who have substituted another subject for Accountancy may be considered if their standing is high enough.

PRESCRIPTION OF WORK IN EACH SUBJECT

For the examinations in June and September 1958

In all papers marks will be deducted for errors in spelling and grammar.

ACCOUNTANCY

One examination paper.

Double-entry Book-keeping, including all subsidiary books and ledgers, up to and including the use of Control, Total, or Balancing Accounts; closing off of ledgers; preparation of Trading and Profit and Loss Statements and Balance Sheets

Books specially required:

Cash-Book suitable for an office where all cash and cheques received are banked daily, all payments above a certain amount are made by cheque, and all lesser payments through petty cash. Cashier to be able to show the balance in the bank at any time at very short notice.

Cash-Book suitable for an office where sums of cash are kept in the office, in addition to petty cash, and deposits in bank do not include whole of receipts. Cashier to be able to show balances of cash, etc., in office and in bank at any time, and at very short notice.

Departmental Sales and Purchases Journals for recording transactions in different classes of goods.

General Journal ruled so as to segregate items according to ledgers into which they are to be posted, in order that totals may be posted to control accounts.

Other matters specially required:

Bills and Notes Payable Registers.
Imprest System of Petty Cash.
Reserve for Bad Debts, Discounts, and Depreciation.
Inward and Outward Consignments.
Inward and Outward Freight on Merchandise purchased and sold.
Accrued Expenses and Deferred Charges.
Single Entry Book-keeping.
Use of Working Sheets.

Candidates may be required to define and explain such terms as the following:

Invoices; I.O.U.'s; promissory notes; bills of exchange and parties thereto; acceptances, endorsements, etc.; cheques; bills drawn in a set, bills of lading; capital and revenue receipts and expenditure; current and fixed assets; capitalization.

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Marking is arranged so as to prevent any candidate obtaining a pass unless he has shown that he has a sound knowledge of what is outlined in the first paragraph. No candidate is passed who does not show that he understands Control Accounts and their uses. For this purpose subsidiary ledgers and their control accounts in the General Ledger must be shown in full; in addition, the books of original entry must be so ruled and organized that they will produce the required figures no matter how large may be the quantity of items dealt with.

ART—*See Drawing.*

BIOLOGY

One examination paper.

The botanical part of this syllabus is the same as for Junior School Certificate Botany (p. 516) with the following modifications:—

(a) further knowledge of the ecological interrelation of plants and animals is required.

(b) knowledge of the characteristics of particular families of flowering plants is *not* required.

In order to fulfil the requirements of the syllabus satisfactorily, pupils must undertake individually the dissection of animals, section-cutting of plant tissues, microscopic examination of small organisms and tissues, and simple physiological experiments.

A more intensive study of the Junior School Certificate syllabus is expected, with extension along the following lines:

I. The structure, life-history, principles of classification, and evolutionary relationships of the following, based on practical study:

Plants:

Thallophyta:	Algae—Oscillatoria, Protococcus, Spirogyra, Oedogonium, Fucus or Laminaria,
	Fungi—Bacteria, Yeast, Mould, Mushroom, other Fungi including at least one parasitic form.
	Lichens—general.
Bryophyta:	A Liverwort, a Moss.
Pteridophyta:	A Fern, Equisetum, Selaginella.

Spermatophyta: Gymnosperms—one Conifer type and general characters of other local species.

Angiosperms —a Monocotyledon; Dicotyledons— herbaceous and tree types. General structure of flower, fruit, and seed. Comparison with homologous structures of preceding types.

Leading characters of the groups listed above. Trends in the evolution of a many celled body and of sexual reproduction as illustrated by the algal types, and of alternation of generations and adaptation to land life as displayed by the higher forms.

Animals:

Protozoa—Amoeba, Euglena, Paramoecium, Plasmodium.

Cœlenterata—Hydra, Obelia.

Platyhelminthes—Fasciola, Taenia.

Annelida—Lumbricus, external characters of a Polychaete.

Arthropoda—Crayfish, Grasshopper.

Mollusca—Clam or Snail.

Cephalochorda—Amphioxus.

Pisces—Dogfish.

Amphibia—Frog.

Mammalia—Rabbit or Rat, skull of Dog or Cat.

Comparison of the various organ-systems in the animals listed.

Asexual and sexual reproduction. Alternation of generations.

Elements of vertebrate embryology as found in the developing Frog and in the Chick (up to end of third day of incubation), to be studied practically.

II. Physiology: structure in relation to function.

Plants—Microscopic structure of a typical leaf, root, herbaceous stem, and woody stem studied in relation to the functions of the organ and its parts.

A fuller knowledge of the principal physiological processes as outlined in the Junior Syllabus. This should be based on simple experiments carried out by the student, which he may be asked to describe.

Animals—The chief physiological processes, as outlined in the Junior Syllabus, should be studied more fully and comparatively in all the types listed in Section 1.

Tissues and organs and their functions as observed in Vertebrates.

Respiratory pigments. Vitamines, Hormones. Commensalism. Parasitism.

III. Field Natural History and Ecology.

This should be extended beyond the Junior Syllabus to include study of several biotic communities of the neighbourhood, with some knowledge of the dominant plants and animals in each and their relation to one another and to the physical environment.

Life zones and living natural resources of Canada.

IV. Heredity and Evolution.

The main principles of heredity and variation among plants and animals.

Cytological basis of heredity.

Evidences of organic evolution.

CHEMISTRY

One examination paper.

A general survey of Inorganic Chemistry including the Kinetic and Atomic Theories, molecular, atomic, and equivalent weights, the theory of ionization with elementary examples of ionic equilibrium, rates of chemical reaction and the law of mass action, oxidation and reduction, the electromotive series of the metals, the periodic law, the electronic theory of valence, and the preparation and properties of the more important elements and their compounds.

This is to be accompanied by descriptive and quantitative experiments including volumetric analyses, illustrative of the important principles and theories.

The student's notebook, setting forth his own laboratory work (together with any problems or exercises carried out in connection with the laboratory work), certified by the Instructor and the Principal of the School, must be forwarded to the Registrar for the examiner's evaluation *before the date of the written examination.*

DRAWING

No examination paper.

Students applying for Senior School Certificate standing in Drawing must present a portfolio of original work. The portfolio must be accompanied by a statement signed by the student and another signed by the art teacher or the school principal, certifying that the work contained in the portfolio is original work of the student not corrected by any other hand.

The portfolio should contain:

A. Ten studies from life, of which at least five must be of the nude human figure. The remainder may be of the nude model, of the draped human model, or of animals. At least five of the above studies must be in charcoal, the remainder in any graphic or painting medium.

Candidates should bear in mind that what is required is not so much proficiency of performance as evidence of understanding of form and structure.

B. Five sketches for compositions, either in black and white or in colour. They may be with or without a representational subject; in either case they should stress the elements of design.

C. Five other examples of their work: these may include drawings, paintings (of any subject in any medium); applied designs (posters, textile designs, etc.).

The dimensions of the work listed above must be not less than 16 x 20 inches. Candidates would do well to add to their portfolios a sketch book or a group of quick sketches.

ENGLISH

Two examination papers: one on English Literature and one on English Composition.

COMPOSITION

The examination will be designed mainly to test the candidate's ability to write English. He will be expected to have acquired a fairly clear and accurate style, to be able to arrange material in an effective fashion, and to show discrimination in the choice of words. He may be asked to write a precis to demonstrate his ability to extract the essential meaning of a given passage. In preparation for the examination it is suggested that students be required to write mainly on simple, expository subjects that are within the range of their actual experience.

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LITERATURE

1. Shakespeare—1958 Either *King Lear* or *Cymbeline.*
   1959 Either *Othello* or *The Tempest.*
   1960 Either *Antony and Cleopatra* or *The Winter's Tale.*
   No particular edition of the above is prescribed.

2. Milton— 1958 *L'Allegro, Il Penseroso, Comus, Lycidas, the sonnets included in Century Readings.**
   1959 *Paradise Lost, Books I and II,* and *Book III lines 1-55.*
   1960 *Samson Agonistes.*

3. One Poet of the Nineteenth Century—
   1958 Wordsworth.
   1959 Byron.
   1960 Keats.
   No particular edition of the above is prescribed.

   Candidates are not required to study the complete works of these authors. Teachers are recommended to make their own selection so as to give their students an understanding of the relevant poet's best and most characteristic work.

4. The following texts from *Century Readings*:*

   (a) Poetry:
   Chaucer, *Prologue to the Canterbury Tales.*
   All the Ballads included in the volume.
   Spenser, *The Faerie Queene, Book I, Canto 1.*
   All the lyrics by Campion, Herrick, Herbert, and Vaughan included in the volume.
   Dryden, *Alexander's Feast* and *Absalom and Achitophel.*
   Pope, *The Rape of the Lock.*
   All the poems by Gray and Goldsmith included in the volume.
   Wordsworth, *The Solitary Reaper, Ode to Duty, Character of the Happy Warrier, Ode, Tintern Abbey,* several sonnets.
   Burns, *Tam O'Shanter, The Cottar's Saturday Night.*
   Coleridge, *Kubla Khan, The Rime of the Ancient Mariner.*
   Shelley, *Ode to the West Wind.*
   Byron, *Don Juan, Canto iii.*
   Keats, *Eve of St. Agnes, Ode on a Grecian Urn, To Autumn, La Belle Dame Sans Merci.*
   Tennyson, *Locksley Hall,* selections from *In Memoriam* and *Morte d'Arthur.*

**Century Readings in English Literature,* edited by Cunliffe, Pyre, and Young.

Browning, *Abt Vogler, My Last Duchess, Andrea del Sarto, Memorabilia, De Gustibus.*
Arnold, *Rugby Chapel.*

(b) Prose:

Malory, *Morte d'Arthur: Preface by Caxton, and first five chapters of Book 21.*
Bacon, *Of Truth*, and *Of Studies.*
Walton, *Compleat Angler, Chapter IV.*
Bunyan, *Pilgrim's Progress*, the extract included in the volume.
Defoe, *The Education of Women.*
Swift, *A Modest Proposal.*
Steele, *Sir Roger in Love.*
Addison, *Sir Roger at the Assizes, Party Patches*, and *Westminster Abbey.*
Johnson, *Letter to the Earl of Chesterfield.*
Newman, *The Idea of a University, Discourse VI.*

5. Poems by any or all of the following, selected at the discretion of the candidate from any available editions:
Housman, Davies, Hardy, Yeats, Auden, Spender, Eliot.

6. Any five items selected from the *Pocket Book of Short Stories.*

7. E. M. Forster, *A Passage to India.*

8. J. M. Synge, *Riders to the Sea.*

FRENCH

Two examination papers: one on Texts and Grammar and one on Composition and Sight Translation.

Texts:

For critical study:

1958—Romains, *Knock* (The Century Company); Balzac, *Eugénie Grandet* (Ed. Speirs) (Heath); Bart, *La France carrefour des civilisations* (Harcourt Brace).

1959—Beaumarchais, *Le Mariage de Figaro* (Petits Classiques Larousse); Mauriac, *Les Chemins de la Mer* (Keating and Swain) (Heath); Mérimée, *Carmen et Autres Nouvelles* (Ed. Blondheim) (Heath); Balzac, *Eugénie Grandet* (Ed. Speirs) (Heath).

Suggested Grammar:
Sonet and Shortliff, *Review of Standard French* (Harcourt Brace).

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Translation at Sight from English into French and from French into English.

**Oral Examination:* An oral examination is held in centres where this is possible, and students intending to study French at the University are strongly advised to take this examination. The oral examination is given in *addition* to the two papers. Success in the oral examination is recorded on the candidate's certificate. A candidate who fails in the oral examination does not thereby prejudice his chances of obtaining a certificate, but is treated exactly as though he had not attempted the oral test.

GEOGRAPHY

It is presumed that candidates taking this examination will have mastered the elements of geography as outlined in the syllabus for the Junior Examination.

A. Local Geography (one quarter of the course)

An intensive study of the candidate's home locality, especially of the distribution of population and economic activities in relation to the main physical features and climate of the region. This study should be based on actual excursions and a detailed examination of the appropriate large scale maps (published by the Hydrographic and Map Service Branch of the Department of Mines and Resources).

B. Regional Geography (three quarters of the course)

A detailed study of the Americas (North, Central, and South) and Europe, including the U.S.S.R. The general lines of the course should follow the directive laid down in the Junior Examination syllabus, but greater attention should be given to the following matters:

(i) The geological structure of the countries concerned, and the effect of this structure on the scenery and natural resources.

(ii) The part played by the countries of Europe in the history of exploration and the development of maritime trade.

(iii) The characteristic settlement types and distribution of population in the various countries, and the ways in which these are changing.

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*Candidates who wish to take the examination in Oral French at a centre outside Montreal must send in the special early notification mentioned in the footnote on page 506.

GERMAN

(*See footnote on page 536 concerning the Senior B.Sc. or B.Eng. German requirements in special cases.*)

Two examination papers: one on prescribed texts and one on translation of unseen passages from German into English and from English into German.

Texts: Th. Storm, Immensee (Morgan-Wooley-Heath); G. Keller, Kleicher Machen Leute (Heath); Viebig, Der Gefangene (Crofts).

Translation at Sight from German into English and from English into German.

GREEK

Two examination papers: one on prescribed texts and grammar, the other on composition and sight translation.

Texts: Homer, Iliad XXII (Pitt Press Series, Camb. Univ. Press); Lysias, pp. 30-92, in Shuckburgh's Lysias, Orationes (Macmillan).

N.B.—Although the above editions are suggested, others may be used.

HISTORY

One examination paper.

General History of Europe from the break-up of the Roman Empire to 1600.

In preparing for the History papers a rigid adherence to any one author or to any one book is undesirable. A guide to Reading containing references and suggestions for teachers and students who are preparing for this History paper may be obtained from the Registrar's Office.

LATIN

Two examination papers: one on prescribed texts and grammar, the other on composition and sight translation.

Text: A. Petrie, *A Latin Reader* (Oxford University Press)

Caesar X.
Cicero XIII, XV, XXXVI, XL, XLIII, XLIV.
Sallust XLVI.
Livy L, LI.
Pliny LXVI, LXIX.
Catullus LXXIII, LXXIV.
Virgil LXXXVII, XC, XCII, CI.
Horace CIX, CX, CXI, CXIV.
Ovid CXXIV, CXXV, CXXXI, CXXXVII.

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MATHEMATICS

Four figure mathematical tables will be provided.

ALGEBRA

One examination paper.

Arithmetic, geometric, and harmonic progressions, variation, permutations and combinations, binomial theorem, logarithms, number system, theory of quadratic equations, functional notation, graphical representation, miscellaneous series such as the sum of the squares and of the cubes of the natural numbers with easy deductions therefrom, as in Intermediate Algebra by H. Tate, published by Sir Isaac Pitman and Sons, Toronto, or as in similar textbooks.

CO-ORDINATE GEOMETRY

One examination paper.

The elements of the coordinate geometry of the straight line and circle as in A New Analytic Geometry by J. E. Durrant and H. R. Kingston, published by the Macmillan Co. of Canada, pp. 1-153 inclusive, and pp. 292-296, or as in similar textbooks.

TRIGONOMETRY

One examination paper.

Measurement of angles, radian measure, trigonometrical ratios or functions of one angle, of two angles, and of a multiple angle, relations between the sides and angles of a triangle, solution of triangles using logarithms, easy problems on heights and distances, general values and inverse functions, limits and approximations, as in Elementary Trigonometry by H. S. Hall and S. R. Knight, adapted for use in Canadian Schools, 1940 edition, published by the Macmillan Co. of Canada, Chapters I-XIII, XVII, XVIII and pp. 204-205, or as in similar textbooks.

MUSIC

Two written examination papers: one on Advanced Rudiments and Harmony, and one on Form and Analysis and History. In addition there will be a short practical examination on Aural Training.

(a) HARMONY

Scales; intervals; transposition of melodies; use of C clefs; barring of certain passages and determining their keys; analysis of chords; chords up to the Dominant 7th and Augmented 6th. This course leads gradually

to the writing of simple harmony in 3 or 4 parts. The work covered is that required for the Grade 10 Theoretical Examination of the Local Centre Examinations. (See the Announcement of the Faculty of Music.)

Textbooks: MacPherson, Rudiments of Music; Kitson, Elementary Harmony—Part I.

(b) FORM AND ANALYSIS

Phrase, sentence, sequence, cadence, accent, rhythm, time, melody, modulation. Early Dance Forms. Suites—with special consideration of the Minuet and Trio.

Textbooks: MacPherson, Form in Music; MacPherson, Studies in Phrasing and Form; R. O. Morris, Structure of Music.

(c) HISTORY

Musical origins, Hebrew and Greek influence on early Christian music; the rise of music in two or more parts; secular music; English, Flemish, and Italian composers; the Renaissance; instrumental music (lute, virginal, viol, etc.); opera; beginnings of the orchestra. Bach and Handel; C. P. E. Bach and sonata form; Haydn; Mozart. The Romantic Movement; nationalism in music; modern music.

Textbook: Stanford and Forsyth, A History of Music; Hadow, Music.

(d) AURAL TRAINING

Development of a mental appreciation of scale degrees; recognition of intervals and simple rhythms; easy dictation; sight reading; listening —to develop quickness of ear, memory, and natural accuracy; quality of tone.

PHYSICS

One examination paper: It will be set upon a general knowledge of the more important principles of elementary physics, the scope being that of Mendenhall, Eve, Keys, and Sutton, *College Physics* (Heath), or of any equivalent text books.

Laboratory Work: Experiments should be performed equivalent to those outlined in *An Elementary College Course in Experimental Physics* (Renouf). The student's notebook setting forth his own laboratory work, certified by the instructor and by the principal of the school, must be forwarded *before the examination* to the Registrar for inspection.

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SPANISH

Two examination papers: These will be set as for the Junior School Certificate, but the examination will be of a more advanced character, and will include a short free composition.

Prescribed texts: — Baroja, Zalacain el aventurero (Heath & Co); A. Palacio Valdés, A cara o cruz (Macmillan).

CERTIFICATES RECOGNIZED

The following certificates will be considered on their merits towards meeting the University requirements for the equivalent of Senior Matriculation.

PROVINCE OF QUEBEC
Senior High School Leaving Certificate
Senior Catholic High School Leaving Certificate

PROVINCE OF ONTARIO
Grade XIII Certificate

PROVINCE OF NOVA SCOTIA
Grade XII Certificate

PROVINCE OF PRINCE EDWARD ISLAND
Third Year Certificate of Prince of Wales College

PROVINCE OF MANITOBA
Grade XII Certificate

PROVINCES OF ALBERTA AND SASKATCHEWAN
Grade XII Certificate

PROVINCE OF BRITISH COLUMBIA
Senior Matriculation Certificate

GREAT BRITAIN
In the General Certificate, passes in five subjects at Ordinary level and, in addition, in two appropriate subjects at Advanced level.

In addition, pupils of recognized British Public and Secondary Schools who have obtained the General Certificate of Education with the requisite standing as recognized for Junior Matriculation may be admitted to the Second Year without further examination, if they have satisfactorily completed at school a further year's work in the subjects of the McGill Senior School Certificate, and if they are specially recommended by their headmasters or headmistresses.

McGill University

Montreal

Scholarships, Bursaries, Prizes, and Medals

1957-1958

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
Institute of Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture and School of Household Science
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. For limited distribution.)

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e Calendar (Available for distribution only to libraries and officials of certain institutions.)

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ARTS AND SCIENCE

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Michael Barza
Stanley Blicker
Saul C. Blum
Allan U. Brender
Geraldine O. Carey
Robert S. Carswell
Ronald G. Cavell
Pang Ling Chan
Barry F. Clark
Paul B. Cohen
John G. Cragg
Donald A. Dawson
Dorothy de Montmorency
Eva Deutsch
Deborah Eibel
David A. Freedman
Sandra J. Freedman
Jobst H. Frohberg
Albert W. Fulton
Antoinette Gelbert
Morris Gertel
Philip Gold
Hyman Goldberg
Eleanor A. Gonder
Anna L. Guthrie
Abraham A. Hartman
Jacques Hochglaube
Isidore Horowitz
Anita D. Janco
Ivor M. Jones
Abraham Katz
Ralph Kornbluth
Barbara A. Ledden
Saul Levine
Mortimer Levy
Morven C. McIlquham
Katherine E. McKellar
Roman Mangel
Oleh H. Maryniak
Norman M. May
Daniel N. Mettarlin
H. Blanche Micas
Melvin Month
Stanley P. Morris
Taketo Murata
Morton A. Nerenberg
Lawrence H. Officer
Carol J. Parkinson
Roger W. Phillips
David N. Pickersgill
Bruce H. Pomeranz
David L. Portigal
Patricia A. Powers
Martin C. Raff
Wesley Rapoport
Eric Rennert
Lazer Resnick
William G. Ross
Aaron Rotsstein
E. G. Peter Rowe
Bernard B. Schiff
Isidore Shanfield
Theodore Shiff
Melvin Silverman
Stuart L. Smith
Nahum Spinner
Jack M. Tishler
Janet E. Turnbull
Alexander G. Vicas
Andrew D. Webster
Peter G. White
George Wolf
Sandra Zelnicker
Henry Zemel

ENGINEERING

Dan I. Abramovitch
Lawrence K. Anderson
Colin B. Atkinson

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Alexander Becker
Pierre R. Belanger
Robert C. Brereton
David G. Bruneau
Wellington P. Chen
Allen Clamen
Carol C. Darabaner
Kenneth P. Davies
Jean R. DeRome
Allan Fried
Peter M. Haley
Ostap Hawaleshka
Barry A. Howarth
Norman R. Jones
Stewart L. Kerby
Avrum Lapin
Pablo M. Leizaola
Gunter J. Lichtenberger
Donald L. MacLeod
E. Keith Marchildon
Juris Mazutis
Paul Mermelstein
Gordon E. Merritt
Joseph A. Michaud
Catalin D. Mitescu
Robert B. Moore
Edward Muszynski
Patrick A. O'Hara
Peeter Onno
Sidney Pasoff
Zannie W. Pylypyshyn
David H. Race
J. Spruce Riordon
Edward A. Silver
Druce A. Sinson
Keto Soosaar
David A. Talbot
Rene B. Testa
J. Sheldon Therou
Hugh M. Thompson
Ernest W. Trischuk
Emilio Venezian
Giulio V. Venezian
Marcel Wein
Michael Werleman
Romeo Wlochowicz

MEDICINE

Eamon P. Achong
David W. Bailey
Gerald Burke
Herman Gelber
Allan B. Gistrak
Ronald Kapusta
Irwin Lewis
Dario W. Lorenzetti
Kenneth G. Marshall
Jack Mendelson
Allan I. Mindlin
Allan P. Naimark
David Quastel
Nathan M. Sheiner
*David M. Simpson
**Mary Szwarc
Bryce K. Weir
Earle S. Wright

DENTISTRY

William B. Zimakas

LAW

Jean-Louis Baudouin
Joseph A. Brabant
Avrum Cohen
Benjamin Greenberg
James C. K. Hugessen
Sheldon Merling

MACDONALD COLLEGE

Isobel Allan

*Frederick Smith Memorial Scholar.

**James Eccles Scholar.

PHYSICAL AND OCCUPATIONAL THERAPY

Susan F. Bunge
Gloria Kerdman
Della A. Puddy

SCHOOL FOR GRADUATE NURSES

Helen Moogk

HOLDERS OF J. W. McCONNELL MEMORIAL SCHOLARSHIPS 1956-57

Robert E. Amaron
Robert H. Barrigar
Geraldine O. Carey
Myrna F. Durrant
Albert W. Fulton
Colette L. Gosselin
Ulo Okapuu
Peeter Onno
Patricia A. Powers
Estelle Schecter
Warren F. Steck
Martha Watanabe
George F. White

HOLDERS OF MORRIS W. WILSON MEMORIAL SCHOLARSHIPS 1956-57

Gail F. Asbury
Jean Huntley
Ronald W. K. Jones
Sandra B. Kee
Stewart L. Kerby
Beverley W. McKee
Neil S. Oakey
Janice Purser
Robert H. Veach

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Scholarships, Bursaries, Prizes, Medals, and Loan Funds

I. GENERAL STATEMENT

1. DEFINITION OF TERMS

At McGill University the terms *Fellowship*, *Scholarship*, and *Bursary* have, in general, the following meanings. Exceptions are noted in the paragraphs describing individual awards.

Fellowship.—A grant made for postgraduate study or research, and based only on ability. The holder of a fellowship at McGill does not bear the title "Fellow" except in certain special cases.

Scholarship.—An award made to undergraduates or graduates based on academic standing alone. Financial need usually has no bearing on the awarding of a scholarship, but it may influence the amount of money subsequently awarded. Holders of University Scholarships (see below) are given the title "University Scholar". Holders of other scholarships do not receive any special title.

Bursary.—A grant made to a needy student who has reasonably good academic standing. Bursaries are not given to students with financial resources adequate to maintain them at the University. Normally, a bursary entails duties to be performed for the University. The size of a bursary usually varies with the need of the student. The holder of a bursary has no special title.

2. GENERAL REGULATIONS

(1) Scholarships are awarded and bursaries and loans granted only to students taking a regular course leading to a degree or diploma.

(2) Scholarships are awarded only if an adequate academic standard is attained.

(3) The annual income of scholarships and bursaries is usually paid in two instalments, one in October and one in January.

3. UNIVERSITY SCHOLARSHIPS

(1) Certain scholarships implying exceptionally high achievement have been designated "University Scholarships" by Senate.

(2) The winner of a University Scholarship receives the title and status of a "University Scholar".

(3) The minimum value of a University Scholarship is $100 a year. For students living at home the maximum value of a University Scholarship is the tuition fee of the holder. Students who must live away from home in order to attend the University may receive an additional grant not exceeding $500. In each case the grant actually awarded will depend upon the financial needs of the winner.

(4) A University Scholarship is renewable annually provided that in the opinion of the University Scholarships Committee the holder maintains a sufficiently high academic standing.

(5) No application is required.

4. BURSARIES

(1) Bursaries are grants in aid of students of good academic standing who need such assistance to enter the University or to complete their course.

(2) The amount of a bursary varies with the need established.

(3) A bursary is renewable upon application and is tenable normally until the student has qualified for his degree or diploma, subject always to the dual condition that the need for it continues and that the standing of the student satisfies the awarding committee.

(4) The holder of a scholarship may apply for an additional bursary.

(5) Bursaries are normally paid in two instalments: viz.: one in October and one in January.

(6) Holders of bursaries may be required to undertake a certain amount of work for the University in return for their bursaries. The maximum number of hours any bursary holder may be asked to give is three hours a week throughout the session, or one hour for each dollar of his bursary—whichever may be smaller. If a student is able to study while carrying out this bursary obligation as, for example, some library assistants can, the number of hours required may be doubled.

(7) Application forms may be obtained from the Registrar's Office.

5. LOANS

The University has a loan fund of strictly limited amount from which some assistance may be given to particularly deserving students under the following conditions:

(1) Loans are normally made only to students in upper years.

(2) Loans are made only to students of good academic standing who are specially recommended on personal grounds by the Deans of their Faculties.

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(3) The loan, if granted, is made on the basis of an agreement between the applicant, or a sponsor of the applicant, and the University. The amount of the loan, the date, and the manner of its repayment, are made part of the agreement so that the debt may be fully discharged at the earliest possible date.

(4) An applicant for a loan should obtain an application form at the Office of his Dean and submit this, when completed, to his Dean for transmission to the Bursar.

In addition, a new policy has been adopted of making loans available to suitable students who are entering the freshman or sophomore year.

6. INTERVIEWS

Awards and grants of money are made only after a personal interview unless this requirement is explicitly waived.

7. APPLICATIONS AND INQUIRIES

Unless otherwise stated below, applications and inquiries should in the first instance be made to the Registrar.

Applications for all entrance scholarships (see below), for University bursaries, and for the renewal of bursaries, should be made on forms which may be obtained from the Registrar's Office.

II. ENTRANCE SCHOLARSHIPS AND BURSARIES

A. UNIVERSITY ENTRANCE SCHOLARSHIPS AND BURSARIES

1. UNIVERSITY ENTRANCE SCHOLARSHIPS AND BURSARIES

The increase in fees of all faculties, effective in 1957, will clearly increase the burden of many students wishing to enter the University. The Board of Governors, therefore, has in 1957 generously increased the funds available for entrance scholarships and bursaries. The minimum value of a University Entrance Scholarship is $100 a year. For students living at home the maximum value of a University Entrance Scholarship is the tuition fee of the holder. Students who must live away from home in order to attend the University may receive an additional grant not exceeding $500. In each case the grant actually awarded will depend upon the financial needs of the winner. These awards are renewable

annually provided that in the opinion of the University Scholarships Committee the holders maintain a sufficiently high academic standing.

Candidates for these awards are required to submit:

(*a*) their complete High School record.

(*b*) their marks or grades in any recognized matriculation or school-leaving examination.

(*c*) confidential letters from their school principals.

Applications must be made on forms which may be obtained from the Registrar's Office. These must be returned not later than 1st July. The school record and other supporting documents should be sent as soon as they are available. Applications for admission to McGill University should be sent in with the Scholarship Application Forms.

2. ELIGIBILITY

University Entrance Scholarships are open to secondary school pupils entering the First or Second year of any full-time degree course.

They are normally restricted to candidates from Canadian schools, but the University may, in exceptional cases, accept applications from other candidates.

Men and women are eligible on equal terms.

Applications will normally be accepted only from students who will be under the age of 20 on 1st October, 1958. In exceptional circumstances the University may waive this rule.

3. THE TITLE OF "SCHOLAR"

The winner of a University Entrance Scholarship is given the title of "Scholar." His name is printed as such in the Calendar and he has the status of a Scholar within the University.

After entering the University the winner of a University Scholarship is not required to study for honours, and may take the general course.

4. FINANCIAL NEED

The University may require the submission of evidence that the candidate needs the money award to further his educational interests. This evidence will normally include a statement from a parent or guardian. Whenever possible, moreover, the candidate will be interviewed. *Financial need will in no case affect the University's decision as to the winner of a University Entrance Scholarship, but it will influence the amount of the award.*

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The amount of the award made to any Scholar will not be published.

In special cases the University may consider an application from the winner of a scholarship for additional assistance.

B. OTHER ENTRANCE SCHOLARSHIPS AND BURSARIES

Unless otherwise stated, applications for these scholarships must be made to the Registrar before 1st July.

Unless otherwise indicated, the word "Examination" is used below to denote the University School Certificate Examination, the Provincial High School Leaving Examination, the Catholic High School Leaving Examination, or any other standard examination recognized for entrance scholarships.

Applicants who have written examinations other than the McGill School Certificate Examination should send a certified copy of their examination marks to the Registrar's Office as soon as they are published.

J. W. MCCONNELL MEMORIAL SCHOLARSHIPS.—Created and endowed by Mr. J. W. McConnell of the Board of Governors as a memorial to the men and women of the University who gave their lives in the war of 1939-45. The Scholarships are open on equal terms to men and women from any part of Canada and are tenable in the Faculty of Arts and Science, or the Faculty of Engineering. Each scholarship covers the full tuition fee as well as the cost of board and residence in Douglas Hall or the Royal Victoria College for four years or the period necessary to enable the winner to obtain his degree, whichever is the shorter. The award is made by a Special Committee which takes into consideration the character and the financial circumstances of the applicant as well as the academic record. The holder will normally forfeit the scholarship if he fails to maintain an academic standing satisfactory to the Special Committee. Application forms may be obtained from the Registrar's Office and must be submitted by June 1st.

MORRIS W. WILSON MEMORIAL SCHOLARSHIPS.—Established by contributions from a large number of intimate friends and business associates of the late Morris W. Wilson as a memorial to a distinguished citizen who, among his many public activities, rendered distinguished service to the cause of education, and who, at the time of his death, occupied the office of Chancellor of McGill University. The creation of the fund marks the culmination of a hope long cherished by Mr. Wilson, that of supplying the means whereby young Canadian boys and girls of outstanding ability and promise, but in poor financial circumstances, might obtain the benefits of a university education. It is hoped that this fund may be the means of assisting many deserving young Canadians, particularly those from rural areas, to become better equipped to perform

the duties of citizenship and so more effectively to apply their abilities to the general development and welfare of their country.

These Scholarships are open on equal terms to men and women of Canadian parentage, now resident in Canada, and are open only to students who wish to enter the Faculty of Arts and Science, the Faculty of Engineering, or the degree course in Agriculture at Macdonald College. Each scholarship covers the full tuition fee of the student, as well as the cost of board and residence at Douglas Hall, the Royal Victoria College, or Macdonald College, for four years or the period necessary to enable the student to obtain his degree, whichever is the shorter. The holder will normally forfeit the scholarship if, during his course, he fails to maintain an academic standing satisfactory to the Special Committee. Application forms may be obtained from the Registrar's Office and must be submitted by June 1st.

GENERAL MOTORS SCHOLARSHIPS.—Three entrance scholarships at McGill University have been established by the General Motors Corporation of Canada and are open to outstanding young Canadian men and women entering the Faculty of Arts and Science, the Faculty of Engineering, or the degree courses in Agriculture or Household Science at Macdonald College. The scholarships are renewable annually until the holders obtain their first degrees provided they maintain a satisfactory academic standing. Should a holder withdraw or fail to maintain a satisfactory standing the scholarship may be awarded to another qualified candidate who is a member of the same class. The amount of each award is flexible and will range from an honorary award of $200 up to an award of $2,000 a year depending upon the demonstrated need of the individual. Application from out-of-town students should be made on the McConnell-Wilson Memorial Scholarship application form and from local students on the regular University Entrance Scholarship application form. Applications must be submitted on or before the 1st of July.

INCO SCHOLARSHIP.—One entrance scholarship has been established by the International Nickel Company of Canada Ltd., restricted to study in the fields of geology, geophysics, mining, metallurgy, physics, mathematics, and engineering. The scholarship covers tuition fees and provides a grant of $300 annually. It is open to graduates of any Canadian high school or preparatory school and is awarded by the University Scholarships Committee on the basis of academic record, character, and financial need. It is renewable annually until graduation provided satisfactory standing is maintained. If the holder of a scholarship withdraws from the University or fails to satisfy all the requirements, the scholarship will be awarded to another

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qualified student who is a member of the same class. Application should be made on the regular University Entrance Scholarship form.

EDGAR WILSON AND MARGARET WILSON SCHOLARSHIPS.—These scholarships were established in 1956 by a bequest from the late Edgar Moles Wilson to provide scholarships in the case of boys to be known as the Edgar Wilson Scholarships and in the case of girls to be known as the Margaret Wilson Scholarships. They are to assist boys and girls in obtaining higher education in any faculty and are awarded by the University Scholarships Committee on the basis of academic merit and financial need. The awards will not exceed $600 a year and will be renewable annually provided satisfactory standing is maintained. Application should be made on the regular University Entrance Scholarship Form.

SIR WILLIAM MACDONALD ENTRANCE SCHOLARSHIPS IN ARTS AND SCIENCE.—Four scholarships of $150 each endowed by Sir William Macdonald and open only to men are awarded under the conditions governing University Entrance Scholarships. (See page 610 for particulars.)

SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS.—Two scholarships, one in Classics (Greek and Latin) and one in Mathematics, of the value of $600 each, were founded by the late Sir Edward Beatty, former Chancellor of the University. The scholarships are payable at the rate of $150 per annum for four years, and are tenable only in the Faculty of Arts and Science. The scholarships are awarded primarily for ability in either Classics or Mathematics, but school and examination records in other subjects may be taken into account. These awards are made under the conditions governing University Entrance Scholarships (see page 610) and candidates will be required to submit:

(*a*) their complete High School record,

(*b*) their marks or grades in any recognized examination,

(*c*) confidential letters from their school principals.

The winner of a Sir Edward Beatty Memorial Scholarship on entering the University need not necessarily take courses leading to honours in Classics or in Mathematics, but may enter any course for which he is qualified in that Faculty.

Applications must be made on forms which may be obtained from the Registrar's Office. These must be returned not later than 1st July.

These scholarships are open only to male students, educated in Canadian schools, whose parents are British or Canadian born.

HON. ROBERT JONES BURSARY.—Valued at $120 per annum is granted "from time to time to some needy student for the full term of study in the

Faculty of Arts and Science or Engineering." The bursary is not continued if the standing of the holder proves to be unsatisfactory.

ROBERT BRUCE SCHOLARSHIP AND BURSARY.—One entrance scholarship of $100 for one year is available in the Faculty of Arts and Science.

One bursary of $100 is open each year to "young men and women of promising abilities but of straitened circumstances in Arts and Science or Engineering."

*OTTAWA VALLEY GRADUATES' SOCIETY BURSARY.—This bursary of $100 is given through the Ottawa Valley Branch of the Graduates' Society and is open only to bona fide residents of the territory of the Ottawa Valley Graduates' Society. The winner is selected by the University from candidates who have written (1) The McGill School Certificate Examination or (2) The Quebec Catholic or Protestant High School Leaving Examination or (3) The Ontario Grade 12 Examinations or (4) The McGill Senior School Certificate or (5) The Ontario Grade 13 Examination or (6) The Quebec Catholic or Protestant Senior High School Leaving Examination.

ROYAL VICTORIA COLLEGE ENTRANCE SCHOLARSHIPS.—Two scholarships, of $685 each, open to women only, and conditional on residence in the Royal Victoria College, are offered annually. These are awarded on the result of the McGill School Certificate or Senior School Certificate or other approved examinations and are tenable for one year only. Application forms may be obtained from the Registrar's office.

SEBA ABBOTT SMITH MEMORIAL SCHOLARSHIP.—This scholarship which is restricted to women students has a minimum annual value of $50 and a maximum annual value of $200. It will be renewable annually until the holder obtains her first degree provided the holder maintains an academic standing satisfactory to the University Scholarships Committee. The actual value of the award will be determined each year by the University Scholarships Committee according to the need of the holder. Applications should be made on the regular University Entrance Scholarship application forms.

*CANADIAN PACIFIC RAILWAY SCHOLARSHIPS.—Scholarships covering five years' tuition in Chemical, Civil, Mechanical, or Electrical Engineering, or six years' tuition in the School of Architecture, or four years' tuition in the Arts courses of the Faculty of Arts and Science, or in the School of Commerce, or four years in the School of Household Science, Macdonald College, are awarded annually by the Canadian Pacific Railway Company. These are open for competition to apprentices and other employees of the Company under twenty-one years of age, as well

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as to minor sons and daughters of employees. The method of award is that of the University Entrance Scholarships described on page 610, candidates being required to submit:

(*a*) their complete High School record,

(*b*) their marks or grades in any recognized examination,

(*c*) confidential letters from their school principals.

The scholarships will be renewed until the holders obtain their first degrees provided they are entitled to full standing in the next higher year.

Forms of eligibility and full particulars as to the number of scholarships available, etc., may be obtained from Mr. G. A. Smyth, Superintendent of Pensions and Staff Registrar, Pension Department, C.P.R. Offices, Montreal. Applications, on forms obtainable from the Registrar's Office, accompanied by statements of eligibility from Mr. Smyth, must reach the Registrar's Office before 1st July.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS.—Two scholarships have been established as a memorial to the late George Herrick Duggan, D.Sc., LL.D. These are:

(*a*) A scholarship offered annually by the Dominion Engineering Works, Limited, open to all employees of the Dominion Engineering Works, Limited, and its wholly owned subsidiary companies, and to their sons and daughters.

(*b*) A scholarship offered annually by the Dominion Bridge Company, Limited, open to all employees of the Dominion Bridge Company, Limited, and its wholly owned subsidiary companies, and to their sons and daughters.

The value of each of these scholarships will not exceed $750 if the winner comes from outside Montreal, or if in the judgment of the Committee it is desirable for the winner to reside away from home in the interests of his academic work. If the winner is able to live at home, however, the value of the scholarship will be equivalent to the full tuition fees payable to the University, and the Awarding Committee may in this case make an additional grant where there is financial need.

The purpose of these scholarships is to provide an incentive to eligible candidates to qualify themselves for a university education in engineering or scientific work or allied subjects, and to afford them financial assistance while pursuing university studies. The scholarships are awarded primarily on the intellectual attainment and academic record of the applicants, although the characters of the candidates and other circumstances are also taken into consideration. They may be granted for any period, from one to five years, inclusive. To qualify, the applicant must attain

the entrance requirements from time to time established by the University for the course of study applied for, with an average standing of not less than 75%, and thereafter maintain an academic standing satisfactory to the University Scholarships Committee.

In exceptional cases qualified students in the Faculty of Arts and Science and the Faculty of Engineering may be considered for these scholarships.

The awards are made by the Board of Governors on the basis of a recommendation from a special committee composed of the Chancellor, the Principal and Vice-Chancellor, and the Warden of the Royal Victoria College. Applications should be submitted in the form prescribed for University Entrance Scholarships (see page 610).

CONSTRUCTION INDUSTRY SCHOLARSHIP.—A scholarship of $550 is open annually to the sons of employees in the Construction Industry and is tenable in the Faculty of Engineering (Civil, Electrical, or Mechanical only) or the School of Architecture. The award is made by the University Scholarships Committee in consultation with the Building Trades Joint Committee. Academic qualifications and financial need are taken into consideration when making the award. The scholarship is renewable annually until the holder graduates provided his academic standing is sufficiently high. Application forms may be obtained from the Building Trades Joint Committee, 1526 St. Mark St., Montreal, and must be returned by July 1st.

FRANK P. JONES SCHOLARSHIPS.—Under the will of the late Frank P. Jones, in his lifetime President of Consumers Glass Company, Limited, provisions have been made for the establishment of one or more scholarships at McGill University, which are open to junior employees and to sons and daughters of employees of Consumers Glass Company, Limited. Each scholarship has a maximum value of $400 a year and a minimum value of $100 a year, and will be awarded by the University Scholarships Committee to a candidate with qualifications satisfactory to the University. Each candidate must have a good matriculation standing. The scholarships are renewable annually provided the holders obtain satisfactory grades in the examinations at the University until the holders obtain their degrees.

COMBINED ENTERPRISES LIMITED BURSARY.—This bursary has been established by Combined Enterprises Limited and is awarded annually on the basis of academic standing, character, and financial need to a student entering First year Engineering. The bursary is renewable annually, provided satisfactory standing is maintained, until the holder obtains his degree in Chemical, Electrical, Mechanical Engineering, or Engineering Physics. The value of the bursary is $600 for the First year and $445 for each

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succeeding year. Summer employment is offered to holders if they so desire. The award is made by the Scholarships Committee of the Faculty of Engineering in consultation with Combined Enterprises Limited. Application should be made to the Registrar on the regular University Entrance Scholarship form.

SPRUCE FALLS POWER AND PAPER COMPANY LIMITED SCHOLARSHIP.—An entrance scholarship of $1,000 established by the Spruce Falls Power and Paper Company Limited is open to students entering the First or Second year of the Faculty of Engineering. The award is made by the University Scholarships Committee in consultation with the Scholarships Committee of the Faculty of Engineering on the basis of academic standing, engineering promise, and financial need. The scholarship is renewable for a second year in the Faculty of Engineering provided satisfactory standing is maintained and will be of the value of $600. Application should be made on the regular University Entrance Scholarship form and submitted to the Registrar by July 1st.

SIDNEY J. HODGSON SCHOLARSHIPS.—Two scholarships, of the approximate values of $200 and $175 respectively, were founded by Arthur J. Hodgson, Esq., in memory of his son, Sidney James Hodgson, a student of the First Year in Arts, who was killed in action on September 27th, 1918, while serving in the 66th Battery of the Canadian Field Artillery. They are open to boys and girls of Westmount High School who have been in attendance for at least one year. The $200 scholarship is tenable only in the Faculty of Engineering and the $175 scholarship only in the Faculty of Arts and Science. They are awarded to the pupils with the highest percentages in the Junior High School Leaving subjects required for admission to these faculties.

QUEEN ESTHER CHAPTER NO. 30 ORDER OF THE EASTERN STAR BURSARY.—This bursary of $100 established in 1951 by the Queen Esther Chapter No. 30 Order of the Eastern Star is awarded annually by the University Scholarships Committee to a deserving student entering the University.

*SCHOLARSHIP GRANTED BY THE GRADUATES' SOCIETY OF THE DISTRICT OF BEDFORD.—This scholarship of $140 is awarded each year to a student who has taken his or her High School classes (Grades IX, X, and XI) in one of the High Schools of the District of Bedford and who enters the University or Macdonald College to take any full-time degree course. The award, which may be divided between two students, is based on the results of the High School Leaving marks and is awarded by the District of Bedford Graduates' Society upon the recommendation of the University Scholarships Committee.

**Tenable also at Macdonald College.*

*ST. FRANCIS DISTRICT GRADUATES' SOCIETY BURSARY.—This Bursary of $400 is restricted to residents of the area covered by the St. Francis District Branch of the Graduates' Society and is open to pupils of any high school or private school entering any faculty or school of McGill University, including Macdonald College. The Bursary may be renewed for a second year. An amount of $250 of the Bursary is to be repaid by the holder at the rate of a minimum of $50 per year after graduation. The award is made by the St. Francis District Branch of the Graduates' Society on the recommendation of the University Scholarships Committee. Application forms may be obtained from the Registrar's Office.

NARCISSA FARRAND (MRS. N. PETTES) SCHOLARSHIP.—This scholarship, of not less than $600 ($150 for four years), founded and endowed by Mr. and Mrs. H. V. Truell, of Sweet Acre, Knowlton, Que., is awarded annually to the candidate from the Eastern Townships who obtains the highest marks in the June Entrance Examinations for admission to the Faculty of Arts and Science, and who has had his domicile in the Eastern Townships for five consecutive years immediately preceding the examination. Applications should be made on the regular University Entrance Scholarship application forms.

GRACE FAIRLEY TRAFALGAR SCHOLARSHIP.—Founded in 1913 by certain friends and former pupils of the late Miss Grace Fairley, to signalize her long and faithful service to education as head of the Trafalgar Institute. It is of the value of $100, is tenable for one year only, and is awarded annually to the student of Trafalgar Institute who obtains the highest marks in the June School Certificate Examination and enters the Faculty of Arts and Science.

*ISABELLA C. MACRAE SCHOLARSHIP.—This scholarship of $150 is open to residents of Maxville, Ont., who have satisfied the requirements for entrance to McGill University. Should there be no successful applicants from this locality for six years, the scholarship will subsequently be open to any resident in Ontario.

DUNCAN MCCASKILL SCHOLARSHIP.—This scholarship which is restricted to students from Nova Scotia has a minimum annual value of $50 and a maximum annual value of $200. It will be renewable annually until the holder obtains his or her first degree provided the holder maintains an academic average satisfactory to the University Scholarships Committee. The actual value of the award will be determined each year by the University Scholarships Committee according to the need of the holder. Applications should be made on the regular University Entrance Scholarship application forms.

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*CHRISTIE-STORER SCHOLARSHIP.—A scholarship of the value of $200, endowed by the above-named Chapter of the I.O.D.E. in memory of the men of St. Lambert who fell in the Great War, 1914-18, is awarded annually to the pupil residing in St. Lambert who stands highest in the June High School Leaving Examination each year at the Chambly County High School.

MONTREAL WOMEN'S CLUB ELIZA REID MEMORIAL SCHOLARSHIP.—Founded in 1927 by the Montreal Women's Club in memory of the first President of the Club, Mrs. Robert Reid. This scholarship of the value of $150 is tenable for one year, and is awarded each year to a graduate of the Montreal High School for Girls who has completed at least Grades X and XI in this school, and who plans to enter the First year of McGill University in a degree course.

NOTRE DAME DE GRACE WOMEN'S CLUB BURSARY.—This bursary of $150, tenable in the First Year of the University, is awarded annually to a girl student who has completed Grades X and XI in West Hill High School.

VERDUN WOMEN'S CLUB INC. BURSARY.—This bursary of $100 is tenable for one year and is awarded annually by the Verdun Women's Club Inc. to a student who has completed Grade XI in the Verdun High School and who plans to enter the First year of the University, or to a student who has completed Grade XII in the Verdun High School and who plans to enter the Second year of the University. The award is based on academic record, character, and financial need. Preference is given to girl students.

WESTMOUNT WOMEN'S CLUB SCHOLARSHIP.—A scholarship to the value of $200 is awarded annually by the Westmount Women's Club to a girl student matriculating into McGill University or Macdonald College from the Westmount High School.

IMPERIAL ORDER DAUGHTERS OF THE EMPIRE SECOND WAR MEMORIAL BURSARIES.—A number of bursaries in Canadian Universities for students of high academic standing and promise are offered each year by the Imperial Order Daughters of the Empire as a memorial to Canadian men and women who gave their lives in the defence of Freedom during the Second World War. At least one bursary will be awarded in each Province and one in the Yukon to sons and daughters of deceased or permanently and seriously disabled Canadian men and women of the Services (Army, Navy, Air Force; World War II). These bursaries are of the value of $1,600, i.e., $400 a year for four years provided the holder passes the examinations of each year in the spring or at the latest in the autumn of the same year, and satisfies the Provincial Committee of Selection of his

*_Tenable also at Macdonald College._

or her continued fitness to retain the bursary. In making the award the Selection Committee will take into consideration the general record and standing in school, physical fitness, and family circumstances. A candidate must write the Provincial Departmental examinations and may choose the university which he or she wishes to attend. Further information and application forms may be obtained from the Provincial I.O.D.E. Educational Secretary of each Province. In Quebec, the address is 4112 Western Ave., Westmount, Quebec.

AMERICAN CAN COMPANY SCHOLARSHIPS.—These scholarships established by the American Can Company are open to junior employees who have completed at least one year's service with the Company and to sons and daughters of employees who have completed at least five years' service and whose salaries do not exceed $700 per month. All candidates must have completed a high school education or its equivalent and must have a scholastic standing in the top third of the class. Students who have begun their college careers are not eligible. Candidates will be required to take the scholarship aptitude test given by the College Entrance Examination Board. Each scholarship is of the value of full tuition fees payable to the college or university. Each winner may choose any approved privately controlled four year college or university in the United States or any Canadian college or university belonging to the National Conference of Canadian Universities and may undertake any course of study that he or she desires. Further information and application forms which must be submitted by November 30th may be obtained from the Administrator, Scholarship Programme, Canadian Division, American Can Company, 92 King St East, Hamilton, Ontario.

UNIVERSITY BURSARIES (see page 609).

*KHAKI UNIVERSITY AND Y.M.C.A. MEMORIAL SCHOLARSHIP FUND (see page 625).

*LEONARD FOUNDATION SCHOLARSHIPS (see page 625).

WOMEN ASSOCIATES OF McGILL BURSARY (see page 626).

GEORGE J. McMANUS MEMORIAL SCHOLARSHIPS (see page 622).

CHILDREN OF WAR DEAD (EDUCATION ASSISTANCE) ACT (see page 622).

DOMINION-PROVINCIAL LOANS AND BURSARIES (see page 623).

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III. SCHOLARSHIPS, BURSARIES, LOAN FUNDS, AND PRIZES IN THE VARIOUS FACULTIES OF THE UNIVERSITY

A. OPEN TO STUDENTS IN ALL FACULTIES

UNIVERSITY SCHOLARSHIPS.—University Scholarships (see page 608) may be awarded by the University Scholarships Committee to students in any year of any undergraduate faculty. They are awarded for exceptionally distinguished work in the regular University examinations and special applications are not required.

Two of these University Scholarships have special names, the James Eccles Scholarship which is tenable in any year of any faculty, and the Frederick Smith Memorial Scholarship which is tenable only in the Faculty of Medicine.

All University Scholarships are renewable annually provided that, in the opinion of the University Scholarships Committee, the holders maintain a sufficiently high academic standing.

GEORGE J. MCMANUS MEMORIAL SCHOLARSHIPS.—These Scholarships are awarded by the University Scholarships Committee and are open to men or women students in any year of any faculty who have high academic records and need financial help. Each scholarship has a minimum value of $100 and a maximum value of $200. The actual amount awarded will depend upon the need of the winner. These scholarships may be held by students who already have other scholarships, provided they have real financial need.

UNIVERSITY BURSARIES.—The University has established a number of bursaries open to students in all faculties and schools. The general regulations governing the award of these are stated on page 609. Application must be made on a special form and forwarded to the Registrar. The forms may be obtained from the Registrar's Office.

CHILDREN OF WAR DEAD (EDUCATION ASSISTANCE) ACT.—Under this Act fees and monthly allowances are provided for children of Canadian veterans whose death was attributable to military service. Enquiries should be directed to the nearest District Office of the Department of Veterans Affairs.

*DOMINION-PROVINCIAL LOANS AND BURSARIES—The Dominion and Provincial Governments jointly offer a number of bursaries and combined bursaries and loans to degree students in most faculties and schools. These are open to men and women on equal terms. The Quebec grants are half bursary and half loan, the latter being repayable one year after graduation. To be eligible for a Quebec grant, a student must be a British subject with at least five years' residence in the Province of Quebec, and must be under thirty years of age, in good academic standing, and in definite need of financial assistance. In some cases bursaries may be granted to married students. Students following the B.A. course and students in Divinity, Nursing and Graduate Studies are not eligible under this plan, nor are students who receive any assistance from other Government funds. The award varies with the need and will not generally exceed $200 for a Montreal resident or $500 for a non-resident in any one session. These bursaries may be renewed upon application to the Student Counsellor's Office before 1st June if the conditions for granting the award are maintained. Applications for new bursaries must be submitted on the proper forms before 15th September. Decisions regarding renewals of these bursaries are usually made late in August, but decisions regarding the award of new bursaries are not usually made until after the middle of October. For further particulars apply to the Student Counsellor's Office. Students coming to McGill from other provinces should inquire from their Provincial Departments of Education whether they are eligible to participate in any comparable scheme.

*B'NAI B'RITH BURSARIES.—Three bursaries of $100 each have been given to the University by the Mount Royal Lodge of B'nai B'rith. These bursaries are open to men and women students in any faculty. Need and scholarship will determine the award. Applications in writing must reach the Registrar before the end of August.

B'NAI B'RITH HILLEL FOUNDATION BURSARY.—This Bursary of $200, established by the B'nai B'rith Hillel Foundation of McGill University, is awarded by the University Scholarships Committee to a deserving student, irrespective of race, colour, or creed, in any faculty, preference being given to a student returning from service in the armed forces.

*FREDERICK SOUTHAM KER BURSARY.—This bursary was established in 1941 by the late F. N. Southam in memory of his grandson, Frederick Southam Ker, who was killed in action on September 6th, 1940. This bursary of $200 is open on equal terms to men and women of all faculties without respect to religion or race. It is awarded to a student who gives promise of becoming a good citizen but is handicapped in his or her academic course by lack of funds. Financial need, character, and academic record are all taken into account in making the award.

*These awards are also tenable at Macdonald College.

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NATIONAL COUNCIL OF JEWISH WOMEN OF CANADA, MONTREAL SECTION, BURSARIES.—The National Council of Jewish Women of Canada, Montreal Section, offers each year a limited number of bursaries. The value of each award is normally $100. These bursaries are awarded by the Council upon the recommendation of the University Scholarships Committee. Academic standing and financial need are both taken into consideration in making the award. Although there is no legal obligation to pay back these bursaries, the National Council of Jewish Women hopes that holders will, if possible, return the money at some future time so that other students may in their turn be helped through college. Application should be made on the ordinary University Bursary application form.

CELIA AMDUR ISAACS MEMORIAL BURSARY.—Established in 1953 by the Montreal Section of the National Council of Jewish Women and Mr. I. Sydney Isaacs, this bursary of $100 is awarded by the Council upon the recommendation of the University Scholarships Committee. Application should be made on the regular University Bursary form.

ANNIE RABIN WOLFE BURSARIES.—Two bursaries in memory of the late Mrs. Annie Rabin Wolfe have been established by Mr. David Wolfe, her husband, and Mr. Nathan Wolfe, her son. One of these bursaries, with a value of $250 a year, will be provided every year by the Kander Paper Stock Company Ltd. The other, with a value of $300 a year, will be given for five years starting with the 1953-54 session. The bursaries, which may be divided, are open to full-time students in any faculty or school without regard to nationality or religion. They are awarded by the National Council of Jewish Women upon the recommendation of the University Scholarships Committee.

FELIX LEOPOLD BURSARY.—This bursary of $100 was established in 1953 by Mr. Felix Leopold of Montreal and is awarded annually by the University Scholarships Committee to a needy student in any faculty. The holder must have a satisfactory academic record and be of good character, but may be of any religion or nationality.

ABRAHAM I. LANG MEMORIAL BURSARY.—This bursary of $50 has been established by Mr. I. Wachman in memory of the late Abraham Isaac Lang, B.A. '28, B.C.L. '32. It is open to men or women students in any faculty who have satisfactory academic records and real financial need. The award is made by the University Scholarships Committee.

**These awards are also tenable at Macdonald College.*

*KHAKI UNIVERSITY AND Y.M.C.A. MEMORIAL SCHOLARSHIP FUND.—The interest on this fund is awarded in scholarships by the Scholarships Committee subject to the following two conditions:

(i) that the scholarships may be held by undergraduates only;

(ii) that the preference is given to sons and daughters of soldiers:

(a) who served in the war of 1914-18;

(b) who served in the war of 1939-45.

*LEONARD FOUNDATION SCHOLARSHIPS.—The Leonard Foundation, created in 1916 by the late Colonel Reuben Wells Leonard and Mrs. Leonard, offers each year a number of scholarships tenable at schools, colleges, and universities in Canada, approved by the Foundation.

The scholarships are open to men and women. A student to be eligible must be "a British subject, of the white race, of the Christian Religion in its Protestant form, and of the full age of fourteen years."

The amount of the award will vary with the need of the winner.

Sons and daughters of the following are given preference in the selection of scholars:

(a) Clergymen, (b) School Teachers, (c) Officers, Non-Commissioned Officers and Men, whether active or retired, of Her Majesty's naval, military, or air forces, (d) Graduates of the Royal Military College, (e) Members of the Engineering Institute of Canada, (f) Members of the Mining and Metallurgical Institute of Canada.

The University is willing to endorse and forward with its recommendation applications of any candidates who may wish to apply through the University and are approved by it.

Such candidates must make their applications on forms to be obtained from the Registrar's Office and must return these to the Registrar before January 1st in the year in which the award would be granted.

A booklet giving further particulars may be consulted in the Registrar's Office.

WILLIAM JOHN DEY BURSARIES.—Established in 1950 under the will of the late Mary Helena Dey in memory of her father, the Reverend William John Dey, M.A., D.D., (B.A.), Class of 1867, McGill University, these bursaries are open to full-time undergraduates, both men and women, in all faculties and schools, and are awarded by the University Scholarships Committee.

These awards are also tenable at Macdonald College.

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KENNETH M. BURKE BURSARIES.—These bursaries were established in 1946 by Dr. Hugh E. Burke in memory of his brother, the late Kenneth M. Burke. They are open to men and women in any faculty, preference being given to sons and daughters of ministers of religion.

FROTHINGHAM BURSARIES.—The Frothingham Bursary Fund was established in 1951 by a bequest from the late Mrs. Harriet F. Miller, the revenue of which is used to provide bursaries for outstanding women students in any faculty. These bursaries are awarded by the University Scholarships Committee.

MONTREAL BRANCH, CANADIAN WOMEN'S PRESS CLUB SCHOLARSHIP IN JOURNALISM.—This scholarship of $150 is open to women students in any faculty at McGill University, including Macdonald College, who are spending at least another year at the University. The qualifications are high academic standing and definite ability in writing. Preference will be given to students who intend to make journalism a career and have taken an active interest in student publications. It is restricted to Canadian citizens. Application should be made by letter to the Registrar on or before April 1st.

WOMEN ASSOCIATES OF MCGILL BURSARY. — A bursary of approximately $200 is available each year to men and women students in any Faculty. Scholarship and need will determine the award. The winner will be chosen by the Executive of the Women Associates of McGill from a list of candidates recommended by the Scholarships Committee and selected from the applicants for University bursaries (see page 609).

MCGILL PHARMACY ALUMNI SOCIETY BURSARY.—This bursary of $100 has been established by the McGill Pharmacy Alumni Society in memory of the late James Felix Cartier, D.Ph. 1921. It is awarded by the University Scholarships Committee and is open to deserving students irrespective of race, colour or creed. Preference is given to First or Second year B.A. or B.Sc. degree students who intend to study pharmacy after graduation.

CAPLAN BURSARY.—This Bursary of $100 was established by the late Mr. J. L. Caplan and is awarded by the Principal on the recommendation of the University Scholarships Committee to a first year student in any faculty who may be thereby helped to obtain a university education.

MCGILL U. N. T. D. BURSARY.—This Bursary, endowed by the University Naval Training Division with an annual value of $40, is awarded by the University Scholarships Committee on the recommendation of the responsible Naval authorities to the U. N. T. D. rating who is considered to be the most deserving applicant. If in any year there is no applicant of high enough quality, the award is withheld.

CANADIAN LEGION BURSARY.—This bursary of $250 was established in 1953 by the Canadian Legion of the British Empire Services League, Ypres Branch No. 53, and is awarded annually by the University Scholarships Committee to a needy veteran student or to the son or daughter of a veteran in any faculty or year.

TEMPLE EMANU-EL SISTERHOOD BURSARY.—Established in 1946 in memory of the men who lost their lives in the war of 1939-45, this Bursary, with an annual value of $100, is open to men undergraduates in all faculties and is awarded by the University Scholarships Committee.

ROY M. WOLVIN MEMORIAL BURSARIES (see page 634).

STUART DUNN MEMORIAL SCHOLARSHIP—Founded by Major Charles Gwyllym Dunn of Quebec City in memory of his son, Sergeant (Wireless Air Gunner) Stuart Dunn, R.C.A.F., a student at McGill University who died on active service in July, 1941. The scholarship, value $125 per annum, is to be awarded annually to a male student of the Protestant Christian Faith whose home is outside the Island of Montreal. In making the award the Scholarships Committee takes into consideration: (a) the candidate's scholarship, character, personality, and quality of leadership, (b) his need of financial assistance, and (c) the general usefulness to the community of the special branch of study he proposes to follow.

JOSEPH ALFRED JACOBSON MEMORIAL SCHOLARSHIP.—This scholarship, of $200, was established by the late Mr. Percy N. Jacobson and Mrs. Jacobson in memory of their son, Flight-Sergeant Joseph Alfred Jacobson, of the Royal Canadian Air Force, who was killed in action on the 28th January, 1942. The scholarship is open to men and women in any faculty on equal terms. It is given to a student selected by the University Scholarships Committee on the grounds of his personality, academic strength, interest in university sports, and financial need.

HINGSTON BURSARY.—This bursary of $80 has been established by Mrs. Stuart Merrett in memory of her son, Pilot Officer F.W. (Billy) Hingston, B.A. 1940, who was killed while flying in a raid on Germany on the 4th of December, 1943. The bursary is open to male undergraduates without restriction as to race or creed or faculty and is awarded by the University Scholarships Committee.

CANADIAN ARMY UNIVERSITY COURSE MEMORIAL BURSARY.—This bursary has been established by the Canadian Army University Course Association of McGill University as a memorial to the three of their comrades, Richard F. Gyles, Robert J. Lockhart, and James C. Wheeler, who lost their lives in the World War, 1939-45. It is awarded by the University Scholarships Committee on the recommendation of the Association and

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preference is given to members of the McGill Canadian Army University Course and to other men who volunteered for active service, and their children.

PRIZES

CHESTER MACNAGHTEN PRIZES.—Two prizes, one of $50 and the other of $30, are offered annually in a competition for the best piece of creative writing in English submitted by an undergraduate student of the University. The work submitted may be a story, a play, a poem, an essay, etc. The material should be carefully selected and properly presented. The judges will not read untidy manuscripts or a large number of newspaper clippings. Compositions that have appeared in print are not ineligible provided they have been published since 1st March, 1957. No candidate may submit more than two entries. Compositions must be typed and must reach the Registrar before the 1st March, 1958. Entries that win prizes or honourable mention will be retained by the University and filed in the Redpath Library. The competition is restricted to those students who have not previously won the First Prize. Awards are made by the University Scholarships Committee.

J. M. RUTHERFORD MEMORIAL PRIZE.—This prize of the value of $100 is awarded for some original work or study undertaken by an undergraduate student of the University, on his own initiative, preferably outside the regular work for his or her degree. Candidates may be nominated by any member of the University staff or may apply in writing directly to the Registrar, submitting evidence of their qualifications. The competition is restricted to those students who have not previously won the Prize. Entries or nominations should be received by the Registrar not later than April 1st. The award is made by the University Scholarships Committee.

NEIL STEWART PRIZE.—An annual prize of $50 in the Hebrew Language and Literature established by Mr. Neil Stewart of Vankleek Hill in 1878, is open to students in the University and in the affiliated Theological Colleges. It is awarded on the results of an annual examination open to students of the Faculty of Divinity of the University and of the Presbyterian College. The examination will be held in the third week in March on translation, grammar, and syntax (but not exegesis) of assigned passages of prose, prophecy, and poetry totalling about twenty-five chapters of the Hebrew Bible, together with Davidson's Hebrew grammar. Information concerning the biblical passages to be set for the examination each year may be obtained from the Registrar's Office, the Faculty of Divinity, or the Presbyterian College.

MCCHARLES PRIZE (see page 656).

SOCIETY OF CHEMICAL INDUSTRY PRIZES (see page 655).

LOAN FUNDS

Application for loans, unless otherwise stated should be made through Deans of Faculties or Directors of Schools.

UNIVERSITY LOAN FUND.—A Student Loan Fund has been established by the University to assist needy students in all Faculties. Loans are made normally only to students in upper years (see page 609), with good academic standing.

STUDENTS' SOCIETY LOAN FUND.—Established in 1956 by the Students' Society and open to students of all faculties in good academic standing without restriction as to race, nationality or creed. Primary consideration is financial need with secondary consideration given to the candidates' contributions to Students' Society activities.

UNIVERSITY LODGE LOAN FUND.—The University Lodge No. 84, Q.R., A.F. and A.M., has established a loan fund for Masons and the children of Masons in attendance at McGill University. Loans will not exceed the annual tuition fees. They are open to qualified students in all faculties and all years. Applications should be made to the Bursar. Need and academic merit will determine the awards.

ROTARY CLUB OF OTTAWA STUDENT LOAN FUND.—The Rotary Club of Ottawa has established a Student Loan Fund for Third and Fourth year students in any faculty who are residents of Carleton County, Ontario, and are attending universities throughout Canada. Annual loans will not exceed $250. Further information and application forms may be obtained from the Registrar's Office.

LUTHERAN STUDENT LOAN FUND.—Lutheran students attending McGill University are eligible to apply for loans from this fund which was established in 1950 by the Evangelical Lutheran Church of the Redeemer. Application should be made to the Student Counsellor.

ROYAL CANADIAN AIR FORCE BENEVOLENT FUND.—Students who served in the Royal Canadian Air Force are eligible for assistance from the R.C.A.F. Benevolent Fund. This Fund makes loans or outright gifts, depending on the special circumstances involved. For further particulars, students should apply to the Student Counsellor, Arts Building.

BERLINER STUDENT LOAN FUND.—Established in 1919 by the late Edgar M. Berliner to provide bursaries and student loans for students in the Department of Sociology and the School of Social Work. Applications should be made to the Director of the School of Social Work.

ISABELLA MCLENNAN BURSARY AND LOAN FUND.—Established in 1950 by Miss Isabella McLennan to aid students of the School of Architecture. Applications should be made to the Dean of the Faculty of Engineering.

HERSCHORN LOAN FUND.—Established in 1951 by Mr. H. E. Herschorn for the purpose of making loans to students in the Third or subsequent year of any faculty who, because of lack of funds, would otherwise be unable to continue their studies. Applications should be made to the Student Counsellor.

CANADIAN CLUB OF MONTREAL FIFTIETH ANNIVERSARY STUDENT AID FUND.—Established in November 1955 by the Canadian Club of Montreal to commemorate the Club's Fiftieth Anniversary. The purpose of this Fund is to foster patriotism by encouraging the study of the institutions, arts, literature, and resources of Canada, and the appreciation of matters of interest and concern to Canadians.

J. K. PRATT MEMORIAL LOAN FUND.—Established in 1952 in memory of the late Janetta K. Pratt who was Cashier at McGill University from 1929 until her death in 1952. Open to students in all faculties.

GREEK STUDENTS BURSARY AND LOAN FUND.—Established in 1952 by a group of Greek merchants to provide financial assistance for Greek students in attendance at McGill University. Applications should be made to the Student Counsellor.

BENNETT EDUCATIONAL FUND.—For students in Engineering (see page 659).

COMMERCIAL SOCIETY LOAN FUND.—For students in Commerce (see page 647).

GEORGE HENRY FROST FUND.—For students in Engineering (see page 659).

KELLOGG FOUNDATION LOAN FUND.—For students in Medicine, Dentistry, and the School for Graduate Nurses (see pages 664, 666 and 707).

BOSWELL JAMES LOAN FUND.—For students in Medicine (see page 664).

WESTON FAY VOLBERG JR. MEMORIAL LOAN FUND.—For students in Medicine (see page 665).

WADDELL LOAN FUND.—For students in Engineering (see page 659).

CANADIAN INSTITUTE OF MINING AND METALLURGY LOAN FUND.—For students in Engineering (see page 659).

PI BETA PHI LOAN FUND.—For students in Social Work (see page 708).

SOCIAL WORK ALUMNI LOAN FUND.—For students in Social Work (see page 708).

SOUTHAM STUDENT LOAN FUND.—For students in Social Work (see page 708).

GLADYS GLASSCO MEMORIAL LOAN FUND.—For students in Music (see page 670).

A. FLEMING LOAN FUND.—For students in Law (see page 669).

W. R. AIRD LOAN FUND.—For students in Dentistry (see page 667).

GRADUATE STUDENTS' LOAN FUND.—For students in the Faculty of Graduate Studies and Research (see page 705).

SCIENCE '25 MEMORIAL LOAN FUND.—For undergraduate students in Engineering (see page 659).

B. OPEN TO STUDENTS IN THE FACULTY OF ARTS AND SCIENCE

For details of Entrance Scholarships see pages 610 and 612.

For scholarships open to women only see page 641.

For Scholarships, Bursaries, and Loan Funds open to undergraduates in all Faculties see page 622.

For details of awards restricted to students in the School of Commerce see page 645.

For details of awards restricted to students in the School of Physical Education see page 647.

For awards open to Graduate Students see page 687.

GENERAL REGULATIONS IN ARTS AND SCIENCE

1. No applications are required. The awards are made by the Arts and Science Scholarships Committee on the basis of examination standings.

2. Unless restricted by the deed of gift or faculty regulations the awards are open to all students studying for the B.A., B.Sc., B.Com., B.Ed., or B.Ed.(P.E.) degrees.

3. Only students in regular undergraduate standing are eligible for scholarships.

4. Scholarships will be awarded only if an adequate standard is attained.

5. If in any college year there is not a sufficient number of candidates showing adequate merit, any one or more of the scholarships offered for competition may be given to more deserving candidates in another year.

6. In order to retain his scholarship a successful candidate must proceed regularly with his college course to the satisfaction of the Faculty.

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7. The annual income of the scholarships will be paid in two instalments, viz.:—One in October and one in January.

SECOND YEAR SCHOLARSHIPS

GROUP I

FACULTY SCHOLARSHIPS.—Six scholarships of $100 each are offered to students advancing from the First to the Second year for proficiency in their subjects of study. The awards will be made on the basis of the students' complete academic records and on recommendations from the departments in which they have taken their courses.

GROUP II

The following scholarships are also offered, according to the terms indicated, to students advancing from the First to the Second year.

JANE REDPATH EXHIBITION.—Founded by the late Mrs. Redpath, for the maintenance of an exhibition in Arts and Science. It is restricted to men and is awarded on the result of the sessional examinations of the First year to the man who makes the highest average on the year's work. Value $100.

MARGARET JANE ALLAN SCHOLARSHIP.—This scholarship, of $200, was established in 1929 by a bequest to the Royal Victoria College from Mrs. Agnes W. Allan. It is awarded each year to the woman student in either the B.A. or the B.Sc. courses in Arts and Science who obtains the highest standing in the sessional examinations of the First year.

CHARLES ALEXANDER SCHOLARSHIP.—Established in 1870 by Charles Alexander, "for the encouragement of the study of Classics and other subjects." Value $100.

BARBARA SCOTT SCHOLARSHIP.—Founded by the will of the late Barbara Scott to form an annual scholarship for the student "excelling in Classics in the First Year." Value $100.

ALEXANDER ADILMAN SCHOLARSHIP.—Established in 1957 under the will of the late Alexander Adilman, this scholarship of $300 is awarded to a student of merit who has completed the First year in the Faculty of Arts and Science. This scholarship is offered for a period of five years only beginning with the 1957-58 session.

SCHOLARSHIPS TENABLE IN THE SECOND, THIRD, OR FOURTH YEARS

GROUP III

UNIVERSITY SCHOLARSHIPS.—(see page 608).

SIR WILLIAM MACDONALD SCHOLARSHIPS.—Six scholarships of $150 each are open to men students in the Second, Third, and Fourth years.

†SIR WILLIAM DAWSON SCHOLARSHIP.—Given by the New York Graduates' Society; value $60. Open also to students in Engineering.

PETERSON MEMORIAL SCHOLARSHIPS IN CLASSICS.—Founded in memory of Sir William Peterson, Principal of McGill University from 1895 to 1918, by his son, W. G. Peterson, M.A. Two scholarships of $250 each are open to students in any year.

DR. BARCLAY SCHOLARSHIP.—Awarded in the Classics Department, value $60.

REFORD SCHOLARSHIP.—The interest on this fund, amounting to about $200 per annum, will be equally divided each year and placed at the disposal of the Departments of English and Philosophy.

HOUSTON SCHOLARSHIP.—Founded by the will of Thomas Houston, to establish a scholarship for French students studying for the ministry of the Presbyterian Church or the United Church of Canada. It is open only to undergraduates in the Faculty of Arts and Science and the Faculty of Divinity under the above restriction and is awarded by the University Scholarships Committee on the result of the sessional examinations without regard to year. The value is $125.

MAJOR HIRAM MILLS SCHOLARSHIP.—This scholarship, of the value of $50, is open to students in any of the biological sciences including Anatomy, Bacteriology, Biochemistry, Botany, Genetics, Physiology, and Zoology. It is open to both men and women.

PENHALLOW SCHOLARSHIP IN BOTANY.—This scholarship of $100 is open to men and women entering the Second, Third, or Fourth year of the undergraduate course. The award is made by the Faculty of Arts and Science on the recommendation of the Department of Botany.

LOGAN SCHOLARSHIPS.—Two scholarships of $100 each, one in the Department of Geological Sciences and the other in the Departments of Botany and Zoology, are open to men and women entering the Second, Third, or Fourth year of the undergraduate course. The awards are made by the Faculty of Arts and Science on the recommendation of the Department of Geological Sciences in the one case and on the joint recommendation of the Departments of Botany and Zoology in the other case.

†*Not to be awarded until further notice.*

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES.—Two scholarships of $375 each are given by Mrs. Roy M. Wolvin in memory of her husband. One scholarship is restricted to men undergraduates in the Faculty of Engineering and one is restricted to women undergraduates in the Faculty of Arts and Science. These two awards are made by the Faculty Scholarships Committees on the basis of the results of the sessional examinations. The bursaries are open to students in any undergraduate faculty who have a good academic record and need financial assistance. Application for the bursaries must be made on the regular University Bursary application form to the Registrar before November 1st.

MCGILL ALUMNAE SCHOLARSHIPS (see page 643).

MAURICE GOLDENBERG MEMORIAL SCHOLARSHIP.—This scholarship of $100 in Government, Constitutional Law, or Public Administration has been established by Mr. H. Carl Goldenberg in memory of his father, the late Maurice Goldenberg. It is awarded annually by the University Scholarships Committee to the best candidate amongst those nominated by the Faculty of Arts and Science and the Faculty of Law. The scholarship is open to both men and women with no restriction as to race, creed, or colour.

WILLIAM HENRY HOWARD SCHOLARSHIPS (see page 651).

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS (see page 616).

PRESBYTERIAN COLLEGE SCHOLARSHIPS.—The Board of Management of the Presbyterian College offers a number of scholarships for the payment of fees of undergraduates in Arts and Science who are registered at the Presbyterian College as in training for the study of theology with a view to the Ministry and who have creditably passed the sessional examinations.

THIRD YEAR SCHOLARSHIPS

GROUP IV

FACULTY SCHOLARSHIPS.—Eight scholarships of $100 each are offered to students advancing from the Second to the Third year in both the General Course and the Honours Courses, on the basis of academic record and recommendations from departments.

GROUP V

The following scholarships are also offered, according to the terms indicated, to students advancing from the Second to the Third year.

ROBERT BRUCE SCHOLARSHIP.—From a fund, created by the will of the late Robert Bruce, of Quebec City, one scholarship of the annual value

of $75, tenable for two years, will be awarded for high standing in the examinations at the end of the Second year.

ALEXANDER MACKENZIE SCHOLARSHIP.—One scholarship of the value of $250 is awarded annually on the results of the honours examinations of the Second year in Political Science and is open only to a student who has completed the work of that year. Tenure of the scholarship is conditional upon the holder's taking the honours work in Political Science of the Third year (see also Group VI).

HANNAH WILLARD LYMAN MEMORIAL SCHOLARSHIP.—This scholarship of $100 is awarded annually to a woman student of the Third or Fourth year.

DELTA PHI EPSILON SORORITY BURSARY.—This bursary, founded by the Delta Phi Epsilon Sorority in memory of Edith Silver, is of the value of $100 and is open to a deserving woman student entering the Third year of the Faculty. It is awarded by the University Scholarships Committee.

KNIGHTS OF PYTHIAS SCHOLARSHIP.—This scholarship, of $300, is awarded annually to a student in the Social Sciences. It is open on equal terms to men and women. The winner must be a resident of the Island of Montreal, and entering the Third year of the B.A. course. The award may be renewed for a further year if the holder proves to be worthy of such recognition.

ALUMINUM COMPANY OF CANADA SCHOLARSHIPS (see page 651).

For other Third year scholarships see also Group III.

FOURTH YEAR SCHOLARSHIPS

GROUP VI

GREENBLATT SCHOLARSHIP.—From the funds left under the will of the late Mrs. Greenblatt, one scholarship of $175 shall be awarded annually in the Faculty of Arts and Science to a student proceeding from the Third to the Fourth year, preference to be given to a student in Modern Languages (other than English) or in History. A committee selected from the Departments of History, German, and Romance Languages will be asked to make a recommendation for this award.

ALEXANDER MACKENZIE SCHOLARSHIP.—One scholarship of the value $250, is awarded annually on the results of the Honours examinations of the Third year in Political Science and is open only to a student who has completed the work of that year. Tenure of the scholarship is conditional upon the holder's taking the Honours work in Political Science of the Fourth year (see also Group V).

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PRINCE OF WALES SCHOLARSHIP.—This scholarship of $200 is open annually to students proceeding from the Third into the Fourth year. The award is made for general distinction by the Faculty of Arts and Science on the basis of the students' complete academic records and on the recommendations from the departments in which they have taken their courses.

ANGUS MCCOY SMITH SCHOLARSHIP.—This scholarship of $125, founded by Mr. and Mrs. Allan L. Smith in memory of their son, Augus McCoy Smith, a graduate of the University, who was killed in the Second World War, is awarded annually to a Protestant male student of the Faculty of Arts and Science who is entering the Fourth year. The award is based on academic record, character, financial need, and general promise.

JAMES DARLING MCCALL SCHOLARSHIP.—This scholarship was founded by J. T. McCall, Esq., in memory of his son, James D. McCall, B.Sc., who was drowned shortly after the war of 1914-18, in which he served with distinction. This scholarship is awarded each year to a male student of the Fourth year professing the Christian religion, who is taking Honours in English or in Philosophy or in both these subjects. It is of the value of $300.

SHAKESPEARE SCHOLARSHIP.—This scholarship, of the value of $100, is awarded annually to a student advancing to the Fourth year who has shown special distinction in English Honours courses. The award is made by the Faculty of Arts and Science on the recommendation of the Department of English.

CHARLES WILLIAM SNYDER MEMORIAL SCHOLARSHIPS.—Two scholarships of $200 each, founded by the late L. P. Snyder, Esq., in memory of his son, Charles William Snyder, a student of First year Arts who was killed in the Battle of Sanctuary Wood on June 2nd, 1916, are awarded annually on the results of the sessional examinations. One scholarship will be awarded on the recommendation of the Department of English to a student entering the Fourth year and taking full Honours in English. and the other will be awarded to a student entering the Fourth year and taking Honours in English and another subject. This second award will be made on the recommendation of the Department of English and the other Department concerned in the student's combined Honours programme. These scholarships are open to male students in the Faculty of Arts and Science professing the Christian religion

CANADIAN ASSOCIATION OF TEXTILE COLOURISTS AND CHEMISTS (QUEBEC SECTION) SCHOLARSHIP.—A scholarship of $100 awarded to the student entering the Fourth year who has obtained the highest aggregate standing in the Third year Honours Chemistry course. The award is made by the Scholarships Committee of the Faculty of Arts and Science upon

the recommendation of the Department of Chemistry without restriction as to colour, race, sex or creed, or any consideration given to financial need.

ANNE MOLSON SCHOLARSHIP.—This scholarship of $125 is open only to men and women students in the Physical Sciences proceeding from the Third into the Fourth year. The award is made by the Faculty of Arts and Science on the recommendation of the Departments of Physics, Chemistry, and Mathematics.

MOBIL OIL OF CANADA, LTD. SCHOLARSHIP IN GEOPHYSICS.—This scholarship of $400 in Geophysics or Geology in conjunction with Physics is open to students entering the final year of the Faculty of Arts and Science. It is awarded by the Scholarships Committee of the Faculty of Arts and Science upon the recommendation of the Chairman of the Department of Geological Sciences on the basis of good character, academic standing, ability to cooperate with associates, breadth of interest, initiative, and willingness to assume responsibility.

CALIFORNIA STANDARD COMPANY GEOLOGICAL SCHOLARSHIP.—This scholarship of $375 is awarded annually by the Scholarships Committee of the Faculty of Arts and Science to an outstanding student as an aid to completion of his final year in Geology.

ALUMINUM COMPANY OF CANADA SCHOLARSHIPS (see page 651).

ROYAL CANADIAN INSTITUTE SCHOLARSHIP.—An undergraduate scholarship of $500 is offered annually by the Royal Canadian Institute. It is intended as an aid in the discovery and development of the young men and women who will become the future workers in science. The scholarship is open to men and women on equal terms and is tenable at any Canadian University at which the candidate is enrolled. Applications will be considered from students in their Third undergraduate year who are enrolled in one of the following courses: Botany, Zoology, Chemistry, Physics, or Geological Sciences. The holder of the award must be qualified to enrol in the final year of his course of studies at the university in which he is enrolled at the time of application. A candidate must not have passed the twenty-first anniversary of his birth on March 31st of the year of application. Application forms may be obtained from the Royal Canadian Institute, 191 College Street, Toronto 2B, Ontario, and must be submitted to the Institute by March 15th of the year of the award.

For other Fourth year scholarships see Group III and Group V.

MEDALS IN ARTS AND SCIENCE

The following medals are awarded to the graduating students who stand highest in the First Class Honours List of the subjects named, provided the Faculty so recommends to Senate:—

The Henry Chapman Gold Medal, for Classical Languages and Literature.

The Prince of Wales Gold Medal, for Mental and Moral Philosophy.

The Anne Molson Gold Medal, for Mathematics and Natural Philosophy.

The Shakespeare Gold Medal, for English Language and Literature.

The Logan Gold Medal, for Geology, Mineralogy, and Palaeontology.

The Major Hiram Mills Gold Medal, for Biology.

The Governor-General's Gold Medal, for Modern Languages and Literature.

The Governor-General's Silver Medal awarded to the student standing highest among those graduating "with great distinction" in the general course.

The Lieutenant-Governor's Gold Medal awarded to the student who stands second among those graduating "with great distinction" in the general course.

The Lieutenant-Governor's Gold Medal awarded to the student standing highest among those graduating with great distinction in the B.Ed. course.

The Allen Oliver Gold Medal, for Economics and Political Science (founded by Mrs. Frank Oliver, in memory of her son, the late Allen Oliver, B.A., M.C., Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme, on November 18th, 1916).

The Lieutenant-Governor's Gold Medal, for History.

The French Government's Bronze Medal for excellence in French in the general or Honours course.

In addition to the above, certain medals are offered annually by the Alliance Française, at the discretion of the Department of Romance Languages.

If there is no candidate for any medal, or if none of the candidates fulfils the required conditions, the medal is withheld, and the proceeds of its endowment for the year may be devoted to prizes in the subject for which it was intended.

PRIZES IN ARTS AND SCIENCE

ANNIE MACINTOSH PRIZE.—The endowment of this prize was contributed by friends and pupils of the late Miss Annie Macintosh and by a special gift of the late Miss I. G. Macintosh. The present value of the prize is $60. It is offered as a prize or prizes to students of the Royal Victoria College in such subject or for such work as the Faculty may determine.

PENHALLOW PRIZE IN BOTANY.—An annual prize of $25, endowed by the Arts Undergraduate Society in 1911, is awarded to the graduating student whose complete record shows the highest first class standing in Botany. At least 4 full courses in the subject must have been taken, and Honours students will receive preference.

HENRY CHAPMAN PRIZE.—A book prize of the value of $25 is given in modern languages (excluding English), or in Hebrew.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

CHERRY PRIZES.—Two prizes in books of $50 and $30 each, founded by Wilbur H. Cherry, Arts 1907, and Anna Cherry, Arts 1918, in memory of their father, William Cherry, Med. 1869, and of their brother, William McFie Cherry, Arts 1911, are awarded annually by the Department of Economics and Political Science to students who are, in the opinion of the Department, deserving of such recognition.

PETERSON MEMORIAL PRIZE IN LITERATURE.—This prize, value $50, founded by W. G. Peterson, M.A., in memory of his father, Sir William Peterson, Principal of McGill University from 1895-1918, is awarded to the undergraduate, or graduate, student who in addition to having achieved distinction in English Literature has given evidence of creative literary ability.

DORA FORSYTH PRIZE.—An annual prize of $50 bequeathed by the late Miss Jeanie Forsyth for English Literature. This prize is open to women students only and is awarded to a candidate recommended by the Department of English Language and Literature and approved by the Faculty of Arts and Science.

FANTHAM MEMORIAL PRIZE IN ZOOLOGY.—This prize of $50, endowed by Dr. Annie Fantham in memory of her husband, Professor H. B. Fantham, late Strathcona Professor of Zoology and Head of the Department, is awarded annually to the graduating student who has taken the full honours course in Zoology and who ranks highest of those obtaining first class honours in this subject. The prize is open to men and women.

MADELENE HODGSON PRIZE IN HISTORY.—An annual prize of $15 endowed by the Imperial Order Daughers of the Empire in recognition of the work done by the late Mrs. W. C. Hodgson as President of the Provincial Chapter of Quebec. The prize is awarded to the Third year Honours student in History who in the opinion of the Department of History has done the most outstanding work in this subject.

HISTORICAL SOCIETY'S PRIZE.—This prize is endowed by a fund belonging to the Historical Society. The award is made jointly by the Executive of the

Historical Society and the Chairman of the Department of History to the male undergraduate in the First year who has shown the greatest promise in History and intends to read for Honours in this subject, and is awarded in books.

ANNE MOLSON PRIZE IN CHEMISTRY.—A prize of $100 awarded annually to the student with the highest record among those graduating with First Class Honours in Chemistry.

LOGAN PRIZES IN BOTANY AND ZOOLOGY.—A sum of $50 is awarded annually as a prize or prizes in the Department of Botany and Zoology for original summer collections. Candidates should consult these Departments concerning the collections to be made.

ETHEL WALKEM JOSEPH PRIZE.—The Wolfe and Montcalm Chapter of the Imperial Order Daughters of the Empire has endowed an annual prize of $25 in the Department of Education as a tribute to the late Mrs. Henry Joseph, Regent of the Chapter.

PROTESTANT HIGH SCHOOL WOMEN TEACHERS ASSOCIATION OF GREATER MONTREAL PRIZE.—A prize of $100 awarded to the woman student attaining the highest standing is the High School Diploma Course.

PRIZE OF THE AMBASSADOR OF SWITZERLAND IN CANADA FOR FRENCH.—A prize in books for excellence in the Third year in French Language and Literature.

PRIZE OF THE AMBASSADOR OF SWITZERLAND IN CANADA FOR GERMAN.—A prize in books for excellence in German is awarded by the Faculty of Arts and Science on the recommendation of the Department of German to an undergraduate student whose mother tongue is not German.

GERMAN EMBASSY PRIZE.—A prize in books for excellence in German.

MARION MCCALL DALY PRIZE.—A prize of $125 awarded each year to a woman student who has completed the Second year and is entering the Third year of the Faculty of Arts and Science or the Faculty of Engineering (including Architecture) at the University. The award is made by the University Scholarships Committee in consultation with the President of the McGill Women's Union and another senior woman student chosen by the Committee. In making the award the Committee takes into account (a) the candidate's promise of making a definite contribution to Canadian life, (b) the financial need of the candidate, and (c) the academic record of the candidate.

WOMEN'S PERSONNEL GROUP OF MONTREAL BOOK PRIZE.—A book prize of $20 is awarded to the woman student in the Faculty of Arts and Science obtaining the highest First Class standing in the Third year course in Industrial Relations. The winner is to choose her own books which will then be purchased by the Personnel Group.

BORIS MUSKATOV PRIZE IN PSYCHOLOGY.—An annual prize of $20 in books has been endowed by Miss Serafima Muskatov in memory of her brother, Boris Muskatov, who died on January 9th, 1948, while a student-veteran at Dawson College. This prize is offered to a student who has completed the Third year in the Faculty of Arts and Science and has done the best work in the subject of Psychology. The award is made by the Faculty of Arts and Science on the recommendation of the Department of Psychology after the Third year examination results are known.

PROVINCE OF QUEBEC PSYCHOLOGICAL ASSOCIATION PRIZE.—A prize of $10 offered annually by the Association to a student in the final year. It is awarded on the recommendation of the Department of Psychology to the student who has, in their opinion, done the most distinguished work in Psychology throughout the course.

SOCIETY OF CHEMICAL INDUSTRY PRIZES.—See page 655.

LOAN FUNDS.—See page 629.

For awards open to graduates see page 687.

C. OPEN TO STUDENTS IN THE INSTITUTE OF EDUCATION

DU PONT COMPANY OF CANADA LIMITED SCHOLARSHIPS.—The Du Pont Company of Canada Limited, offers scholarships to men or women who either are preparing for Science teaching in Canadian High Schools, or are already engaged in such teaching and wish to improve their qualifications. One scholarship with a value of $1,500, tenable at McGill, is offered to a Science graduate who wishes to take the one-year course leading to the High School Teaching Diploma in Quebec. The scholarship is increased by $600 if the holder is a married man. Three scholarships of value $500 are offered to experienced teachers who wish to take the five-week summer course in order to improve their qualifications as Science teachers. Applications and inquiries should be addressed to the Institute of Education.

D. OPEN TO ROYAL VICTORIA COLLEGE STUDENTS

ENTRANCE SCHOLARSHIPS

ROYAL VICTORIA COLLEGE ENTRANCE SCHOLARSHIPS.—Two scholarships of $685 each, open to women only, and conditional on residence in the Royal Victoria College, are offered each year. These are awarded on the results of the McGill School Certificate or Senior School Certificate or other approved examinations and are tenable for one year only. Application forms may be obtained from the Registrar's office.

J. W. McCONNELL MEMORIAL SCHOLARSHIPS.—See page 612.

MORRIS W. WILSON MEMORIAL SCHOLARSHIPS.—See page 612.

GENERAL MOTORS SCHOLARSHIPS.—See page 613.

UNIVERSITY ENTRANCE SCHOLARSHIPS AND BURSARIES.—See page 610

MARGARET WILSON SCHOLARSHIPS.—See page 614.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS.—See page 616.

GEORGE J. MCMANUS MEMORIAL SCHOLARSHIPS.—See page 622.

HON. ROBERT JONES BURSARY.—See page 614.

ROBERT BRUCE SCHOLARSHIP AND BURSARY.—See page 615.

OTTAWA VALLEY GRADUATES' SOCIETY BURSARY.—See page 615.

DUNCAN MCCASKILL SCHOLARSHIP.—See page 619.

SEBA ABBOTT SMITH MEMORIAL SCHOLARSHIP.—See page 615.

CANADIAN PACIFIC RAILWAY SCHOLARSHIPS.—See page 615.

FRANK P. JONES SCHOLARSHIPS.—See page 617.

SCHOLARSHIP GRANTED BY THE GRADUATES' SOCIETY OF THE DISTRICT OF BEDFORD.—See page 618.

NARCISSA FARRAND SCHOLARSHIP.—See page 619.

GRACE FAIRLEY TRAFALGAR SCHOLARSHIP.—See page 619.

ISABELLA C. MACRAE SCHOLARSHIP.—See page 619.

CHRISTIE-STORER SCHOLARSHIP.—See page 620.

SIDNEY J. HODGSON SCHOLARSHIPS.—See page 618.

QUEEN ESTHER CHAPTER NO. 30 ORDER OF THE EASTERN STAR BURSARY.—See page 618.

ADDITIONAL SCHOLARSHIPS AND BURSARIES

For a statement of the scholarships, bursaries, and loan funds open to women students of the University, see pages 622-641.

RESIDENT BURSARIES.—Four resident bursaries in all, of the value of $200 each, are available for outstanding students of the Second, Third and Fourth years who are nominated by the Warden. In exceptional cases one or more of these may be awarded to First year students.

ALPHA OMICRON PI BURSARY.—A Bursary of $50 is given by the Alpha Omicron Pi Mothers' Club for a woman student, resident in Royal Victoria College or non-resident. The award is made on the recommendation of the Warden of the Royal Victoria College to a candidate with good academic standing and financial need.

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES (see page 634).

FROTHINGHAM BURSARIES (see page 626).

MONTREAL BRANCH, CANADIAN WOMEN'S PRESS CLUB SCHOLARSHIP (see page 626).

SPECIAL AWARDS ADMINISTERED BY A COMMITTEE OF THE ALUMNAE SOCIETY

MCGILL ALUMNAE SCHOLARSHIPS

The following scholarships have been established by the McGill Alumnae Society and are awarded annually by the Faculty of Arts and Science on the results of the sessional examinations to distinguished women students of the Second, Third, or Fourth year of the Faculty of Arts and Science.

Each scholarship has a maximum value of $300 and a minimum value of $100.

The winners are interviewed by the Alumnae Scholarship Committee and the value of each award will be determined by them. Financial need will in no case affect the decision as to the winner of a scholarship but will influence the amount of the award.

ETHEL HURLBATT SCHOLARSHIP.—Established in memory of the late Miss Ethel Hurlbatt, a former Warden of the Royal Victoria College.

SUSAN CAMERON VAUGHAN SCHOLARSHIP.—Established in honour of Mrs. Walter Vaughan, retired Warden of the Royal Victoria College.

CARRIE DERICK SCHOLARSHIP.—Established in honour of the late Professor Carrie M. Derick, B.A. 1890, M.A. 1890, first woman professor at McGill.

GEORGINA HUNTER SCHOLARSHIP.—Established in memory of the late Georgina Hunter, a member of the first graduating class of women at McGill University, the first President of the Alumnae Society, and a former Principal of the High School for Girls, Montreal.

HELEN R. Y. REID SCHOLARSHIP.—Made possible by a legacy from the estate of the late Dr. Helen R. Y. Reid, B.A. 1889, LL.D. 1921, and awarded by the University Scholarships Committee to a distinguished woman student in faculties other than Arts and Science.

B'NAI B'RITH MOUNT ROYAL WOMEN'S AUXILIARY NO. 257 offers an annual scholarship of $100 to be given to a deserving student of the college in need of this financial assistance, the award to be made by the Scholarship Committee of the Alumnae Society.

ALUMNAE SOCIETY BURSARIES AND LOANS.—In addition to the above, a limited number of bursaries and loans are offered by the Alumnae Society through its Scholarship Committee.

Students interested in bursaries and loans should consult the Warden before the opening of the session.

GENERAL PRIZES

MARION MCCALL DALY PRIZE.—A prize of $125 awarded each year to a woman student who has completed the Second year and is entering the Third year of the Faculty of Arts and Science or the Faculty of Engineering (including Architecture) at the University. The award is made by the University Scholarships Committee in consultation with the President of the McGill Women's Union and another senior woman student chosen by the Committee. In making the award the Committee takes into account (a) the candidate's promise of making a definite contribution to Canadian life, (b) the financial need of the candidate, and (c) the academic record of the candidate.

EDMUND HENRY BOTTERELL PRIZE.—This prize of $160 was established by a legacy from the late Mrs. Florence A. Redpath. Under the terms of endowment, it is to be known as the "Edmund Henry Botterell Prize" and is to be awarded on the recommendation of the Warden to a First year student registered in the Royal Victoria College. For the present the award will be made to a student whose academic interests and record combined with personal qualities indicate marked promise.

PRIZES IN ARTS AND SCIENCE

ANNIE MACINTOSH PRIZE.—The endowment of this prize was contributed by friends and pupils of the late Miss Annie Macintosh and by a special gift of the late Miss I. G. Macintosh. The present value of the prize is $60. It is offered as a prize or prizes to students of the Royal Victoria College in such subject or for such work as the Faculty may determine.

DORA FORSYTH PRIZE.—An annual prize of $50 bequeathed by the late Miss Jeanie Forsyth for English Literature. This prize is open to women students only and is awarded to a candidate recommended by the Department of English Language and Literature and approved by the Faculty of Arts and Science.

WOMEN'S PERSONNEL GROUP OF MONTREAL BOOK PRIZE (see page 640).

LOAN FUNDS.—See page 629.

See also list of prizes in Arts, Science, Commerce, Architecture, and in all Faculties.

E. OPEN TO STUDENTS IN THE SCHOOL OF COMMERCE

For details of Entrance Scholarships see pages 610 and 612.

For scholarships and bursaries open to undergraduates in all Faculties, see page 622.

SCHOLARSHIPS, BURSARIES, AND PRIZES

PRICE WATERHOUSE & CO. SCHOLARSHIP.—A scholarship of $250, the gift of Price Waterhouse & Co., is awarded annually by a committee consisting of the Principal and Vice-Chancellor, the Director of the School of Commerce, and the Professor of Accounting, to a student in the School of Commerce who is completing his Third year and is proceeding to his final year and plans to continue his studies with a practising firm of chartered accountants. The award will be made to a student with high standing in the Third year examinations whose academic record, ability, and other qualifications are considered to be outstanding. Commerce students in the Third year who wish to be considered should make application to the Director of the School not later than April 15th.

ISAAC BRUCK MEMORIAL SCHOLARSHIPS.—The Bruck Silk Mills presents $500 annually to the University to provide two scholarships in the School of Commerce. The scholarships may be held by the students in the Second, Third, or Fourth year of the School, and are awarded annually without respect to race or sex by the Scholarships Committee of the Faculty of Arts and Science upon the results of the sessional examinations of the School.

PEAT, MARWICK, MITCHELL & CO. SCHOLARSHIP.—This scholarship of $300 is awarded annually to a student with high standing in the Third year of the Accounting option in Commerce who is proceeding to the Fourth year, and who plans to enter articles (on graduation) with a practising firm of chartered accountants. In making the award, consideration will be given to ability, character, and general academic record of the student.

LADDIE MILLEN MEMORIAL SCHOLARSHIP.—A scholarship to the value of $250 has been established by Mr. J. Ernest Millen in memory of his son, Laddie Millen, who was killed in action in the first World War. This prize of $250 will be awarded to the student in any year in Commerce who presents the most satisfactory essay on a topic in the field of Industrial

Relations. Students wishing to compete should submit their essays to the Director of the School of Commerce or to the Director of the Industrial Relations Centre on or before April 1st, 1958. The topic for the 1957-58 contest is "The Conciliation of Labour Disputes in Canada."

MONTREAL STOCK EXCHANGE AND CANADIAN STOCK EXCHANGE PRIZE IN ECONOMICS AND FINANCE.—This prize of $100 is offered for an essay written by a student in the final year of the School of Commerce who is enrolled in the Corporation Finance course. The subject of the essay is chosen annually by the Department of Economics in consultation with the Director of the School of Commerce. An award will only be made if the best essay is considered to be First Class. Final selection will be made by a committee consisting of the course lecturer, the Chairman of the Department of Economics, and the Director of the School of Commerce. Further information may be obtained from the course lecturer.

CHARLES S. C. WISDOM BURSARY.—This bursary of $100 was established in 1956 by Mrs. Stuart Albert Wisdom in memory of her late son, Charles S. C. Wisdom who was a graduate of the Royal Military College, at Kingston, and of the School of Commerce, McGill University. It is awarded by the University Scholarships Committee in consultation with the Director of the School of Commerce to a deserving student in any of the last three years of the Commerce course. Application should be made on the regular University Bursary form.

SYDNEY S. PAPPELBAUM BURSARY.—A bursary of $90 in memory of the late Captain Sydney S. Pappelbaum, B.Com., 1952, is open to students in Commerce who have completed Second year and are entering Third year, with no restriction as to race, creed, or colour. It is awarded by the University Scholarships Committee. Students who wish to be considered should make application to the Registrar on the regular University Bursary application form.

F. W. SHARP PRIZE IN ACCOUNTANCY AND MATHEMATICS.—This prize of $50 will be awarded at the end of the Fourth year to the best student in Accountancy, Business Organization, and Mathematics.

CLARKSON GORDON PRIZE.—A prize of $50 to be awarded at the end of the Fourth year to the student who obtains the highest standing in Accounting and Auditing.

JOSEPH H. JACOBS PRIZE.—The sum of $650 was received from the executors of the estate of the late Joseph H. Jacobs. The annual revenue from this bequest, which is approximately $25, will be awarded as a prize for Second year Accountancy.

PROFESSOR R. R. THOMPSON MEMORIAL PRIZE.—Established in honour of the late Professor R. R. Thompson by the Class of Commerce 1925, this

Prize of $50 is awarded annually to the Third year student in Commerce with the highest standing in examinations in Accounting and Auditing. It is awarded by the Scholarships Committee of the Faculty of Arts and Science on the recommendation of the Director of the School of Commerce.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

MEDALS

SIR EDWARD BEATTY MEMORIAL MEDAL.—A gold medal endowed by the late Sir Edward Beatty, former Chancellor of the University, is awarded to the student in the School of Commerce who attains the highest distinction in Economics. At present, it is awarded on the basis of the aggregate marks for the three full year courses, Principles of Economics (or Honours alternatives), Money and Banking, and Economic Analysis (or Honours alternatives).

LIEUTENANT-GOVERNOR'S MEDALS.—A gold medal and a silver medal have been offered to the School of Commerce by His Honour the Lieutenant-Governor of the Province of Quebec, the gold medal for the student with the highest average throughout the last three years of study; the silver medal for the one who has the second highest average throughout the last three years of study.

LOAN FUNDS

COMMERCIAL SOCIETY LOAN FUND.—A fund has been established by the Commercial Society to be known as "The Commercial Society Loan Fund," for the purpose of aiding each year one or more students of the School of Commerce who are entering their Fourth year, to complete their course. Loans from this Fund are repayable within two years after graduation. Application should be made to the Director of the School of Commerce.

OTHER LOAN FUNDS (see page 629).

F. OPEN TO STUDENTS IN THE SCHOOL OF PHYSICAL EDUCATION

For details of Entrance Scholarships see pages 610 and 612.

For scholarships and bursaries open to undergraduates in all Faculties see page 622.

SCHOLARSHIPS

A. S. LAMB SCHOLARSHIPS.—These scholarships, endowed by friends of Dr. Arthur S. Lamb, formerly Director of the School of Physical Education and of the University Department of Athletics, Physical Education, and Recreation, as a tribute to his work in these fields, were offered for the first time in 1951. There are two scholarships of $100 each, tenable, one by a man and one by a woman, in the final year of the School of Physical Education. They are awarded by a small committee who will take into account both the academic record and the personal qualities of the students eligible. No applications for these scholarships are necessary.

In addition to the above two scholarships, one A. S. Lamb scholarship of $100 is open to any student who, having completed at least one year of the undergraduate course in the School, is proceeding from First into Second year, or from Second into Third year. This scholarship will be awarded by the same Committee, on the basis of scholastic ability, personal qualities and financial need. No application is necessary.

PRIZES AND MEDALS

GOLD MEDAL.—The School awards a gold medal to the student who attains the highest general proficiency throughout the course.

LIEUTENANT-GOVERNOR'S GOLD MEDAL.—This medal is awarded to the junior student who attains the highest general proficiency in the sessional examinations.

(N.B.—The above conditions may be amended and scholarships and prizes may be withheld at the discretion of the Committee.)

LOAN FUNDS.—See page 629.

G. OPEN TO STUDENTS IN THE FACULTY OF ENGINEERING

(Including Architecture)

For scholarships and bursaries open to undergraduates in all Faculties see page 622.

GENERAL REGULATIONS IN ENGINEERING

1. Only students in regular undergraduate standing are eligible for scholarships.

2. Scholarships will be awarded only if an adequate standard is attained.

ENTRANCE SCHOLARSHIPS

WORKMAN STUDENTSHIP.—The University accepts one nomination each year for a full course in Mechanical Engineering from the executors of the estate of the late Thomas Workman, provided the student nominated

(1) is a resident of Quebec,

(2) has obtained in the examinations qualifying for admission to the University the standard required by the Scholarships Committee for University Scholarships or Bursaries.

For other entrance scholarships see pages 610 and 612.

SCHOLARSHIPS AND BURSARIES

UNIVERSITY SCHOLARSHIPS (see page 608).

ROY M. WOLVIN MEMORIAL SCHOLARSHIPS AND BURSARIES.—Two scholarships of $375 each and a number of bursaries are given by Mrs. Roy M. Wolvin in memory of her husband. One scholarship is restricted to men undergraduates in the Faculty of Engineering and one is restricted to women undergraduates in the Faculty of Arts and Science. These two awards are made by the Faculty Scholarships Committees on the basis of the results of the sessional examinations. The bursaries are open to students in any undergraduate faculty who have a good academic record and need financial assistance. Application for the bursaries must be made on the regular University Bursary application form, to the Registrar.

CANADIAN PITTSBURGH INDUSTRIES SCHOLARSHIP.—This scholarship of $250 is awarded to a student in the Fifth year of the School of Architecture who has submitted the best solution of a design problem in which glass is a major item. The judges are a committee of the staff of the School of Architecture or practising architects.

†SIR WILLIAM DAWSON SCHOLARSHIP.—A Sir William Dawson Scholarship, given by the New York Graduates' Society; value $60; open also to students in Arts and Science (see page 633).

ANGLIN BURSARY.—This bursary of $250 was established by the late Mrs. Anglin in memory of her husband, the late Mr. J. P. Anglin, B.Sc., 1906.

HON. ROBERT JONES BURSARY.—This bursary of $120 per annum, is granted "from time to time to some needy student for the full term of study in the Faculty of Arts and Science or Engineering." The bursary is continued until the holder graduates if his academic standing is entirely satisfactory. Applications should be made to the Dean of the Faculty.

†*Not to be awarded until further notice.*

BURSARY OF THE CORPORATION OF PROFESSIONAL ENGINEERS.—The Corporation of Professional Engineers presents annually a bursary of the value of $200, tenable by a student in the Fourth or Fifth year of the Faculty of Engineering, and awarded by the Faculty.

BAYLIS SCHOLARSHIP.—Founded in memory of Mr. and Mrs. James Baylis, of Montreal, and having an annual value of $100, this scholarship is awarded to some student entering the Third year who is in need of financial assistance. The scholarship will be continued during the Fourth and Fifth years, if the standing of the student continues to be satisfactory. Application should be made through the Dean of the Faculty.

DOUGLAS TUTORIAL BURSARIES.—The late Dr. James Douglas, who was a member of the Board of Governors, provided for ten or more tutorial bursaries of approximately $100 per annum in the Faculty of Engineering. In assigning these, the circumstances of the applicants as well as their academic standing are considered. These bursaries carry the obligation of giving tutorial instruction equivalent to one evening a week. Students in the Fourth and Fifth years of Engineering are eligible. Written application should be made to the Dean's Office on or before October 15th.

RICHARD S. LEA TUTORIAL BURSARIES.—The late Mrs. Wanda Lea, widow of the late Richard S. Lea, Consulting Engineer and graduate in Applied Science of McGill University, provided a fund of $5,000, the revenue of which is to be used in aid of students who distinguish themselves in the Faculty of Engineering. The revenue will be used to provide two bursaries of $100 per annum to be given to suitable students in their last two years of Engineering, the bursaries carrying the obligation to give tutorial instruction equivalent to one evening a week. Written application should be made to the Dean's Office on or before October 15th.

H. M. MACKAY MEMORIAL SCHOLARSHIP.—This scholarship, established in 1932 as a memorial to the late Henry M. Mackay, formerly Dean of the Faculty of Engineering, will be awarded to a student of British citizenship who has completed the Second year in Engineering and intends to enter the Third year in September. A committee appointed by the Faculty selects the scholar, having in mind the results of the Second year sessional examinations, general character, industry, and other qualities desirable in an engineer. The value of the scholarship is $125. Payment is withheld if the scholar's progress is unsatisfactory.

JENKINS BROS., LTD., SCHOLARSHIP.—Supported by Messrs. Jenkins Bros., Ltd., and having an annual value of $200, this scholarship is open to all Engineering students entering the Fifth year in September and is awarded on the basis of academic standing and personality.

ALASKA PINE & CELLULOSE LIMITED SCHOLARSHIPS.—This scholarship of $500, offered annually by Alaska Pine & Cellulose Limited, is available to students entering the final year of Chemical Engineering. The award will be made to a student whose record in the academic and practical work of the Fourth year Chemical Engineering is outstanding.

DOW CHEMICAL OF CANADA LIMITED SCHOLARSHIP.—Dow Chemical of Canada Limited has established a scholarship of $500 for a student in the final year of Chemical Engineering. The award is made by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Chairman of the Department of Chemical Engineering, subject to the following conditions: (1) the student must have a sincere interest in the Chemical Industry; (2) the student must be in the upper half of the class; (3) the student must demonstrate some leadership in extracurricular activities; (4) the student must be "personable"; (5) the student must not hold another scholarship.

KENNECOTT COPPER CORPORATION SCHOLARSHIPS.—Two scholarships of $500 each have been established by the Kennecott Copper Corporation and are open to students who have completed their Third and Fourth years in Metallurgical Engineering at McGill University. Eligible students must meet the following qualifications: (a) Proficiency in studies; (b) Enthusiasm, leadership, cooperativeness, initiative, ambition; (c) Good health and sturdy constitution; (d) Financial need. Further information may be obtained from the Chairman of the Department of Metallurgical Engineering.

WILLIAM HENRY HOWARD SCHOLARSHIPS.—Three scholarships of $400 each were established in 1955 from the estate of the late Mrs. Florence P. Howard in memory of her husband. The scholarships are open to undergraduate and graduate students in Metallurgy, Chemical Engineering and Geology, and are awarded by the University Scholarships Committee upon the recommendations of the Departments concerned on the basis of scholastic ability and general promise. The scholarships may be renewed upon the recommendations of the Departments concerned.

CALIFORNIA STANDARD COMPANY ENGINEERING SCHOLARSHIP.—This scholarship of $375 is awarded annually by the Scholarships Committee of the Faculty of Engineering to an outstanding student as an aid to completion of his final year in Petroleum Engineering, Mining Engineering, Mechanical Engineering, Chemical Engineering, or Civil Engineering.

ALUMINUM COMPANY OF CANADA SCHOLARSHIPS.—Two scholarships of $400 each are open annually to Fourth or Fifth year students in the Faculty of Engineering or to Third or Fourth year Honours students in the Faculty of Arts and Science or other faculties providing graduates in

subjects of interest to the aluminum industry. The scholarships will be awarded by the University Scholarships Committee upon the recommendation of the faculties concerned on the basis of financial need, character, and ability.

NEVIL NORTON EVANS SCHOLARSHIP—This scholarship of $100 a year was established in 1937 by graduates of the Faculty of Applied Science (Engineering) to commemorate the work of Professor Nevil Norton Evans, formerly Professor of Chemistry. It is open to students in the Faculty of Engineering who show outstanding ability in Chemistry. The award will be made by the Faculty of Engineering and the Department of Chemistry.

STUART ALBERT WISDOM MEMORIAL SCHOLARSHIP.—This scholarship of $200 was established in 1953 by Mrs. Stuart Albert Wisdom as a memorial to her late husband who graduated from McGill University in 1909 with the degree of B.Sc. (Mining and Metallurgy), and to commemorate his outstanding contributions to the field of metallurgy and, in particular, his invention of the process for the manufacture of acetylene black. The scholarship is awarded by the Faculty Scholarships Committee on the recommendation of the Department of Metallurgical Engineering to a student entering the Fifth year of Metallurgical Engineering who has shown high scholastic ability and engineering promise.

GORDON SPROULE MEMORIAL SCHOLARSHIP.—The Montreal Chapter of the American Society for Metals offers a scholarship of $200 to a student in the Fourth year of the Metallurgical Engineering course. This scholarship has been established in memory of Gordon Sproule, a member of the staff of the Department of Metallurgical Engineering from 1918 to 1953, as a token of his ability and in appreciation of his many services to the Society. The award is made by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Department of Metallurgical Engineering to a student of creditable academic standing, of engineering promise, and who has need of financial assistance.

AMERICAN SOCIETY FOR METALS FOUNDATION FOR EDUCATIONAL RESEARCH SCHOLARSHIP.—A scholarship of $400 is given annually by the American Society for Metals Foundation for Educational Research to attract competent students into the study of Metallurgy. The scholarship is awarded by the Chairman of the Department of Metallurgical Engineering to a student of distinguished ability and engineering promise registering in the Third Year of the course in Metallurgical Engineering.

CANADIAN INSTITUTE OF MINING AND METALLURGY SCHOLARSHIP.—The Montreal Women's Auxiliary of the Canadian Institute of Mining and Metallurgy has established an annual scholarship of $300 open to undergraduate or graduate students in Geology, Metallurgical Engineering, Mining Engineering, or allied subjects.

GEORGE HERRICK DUGGAN MEMORIAL SCHOLARSHIPS (see page 616).

HEWITT EQUIPMENT LIMITED SCHOLARSHIP.—This scholarship of $250 is awarded annually by the Faculty of Engineering to a student in the Fourth or Fifth year in any division of the engineering course. If awarded to a Fourth year student it is renewable if satisfactory standing is maintained. The award is made on the basis of academic standing and engineering promise. In the event that candidates are equal on the above basis, financial need can be considered. Preference is given to students interested in road construction or similar work connected with the Pulp and Paper Industry. No applications are required.

IRON ORE COMPANY OF CANADA SCHOLARSHIPS.—Iron Ore Company of Canada has established two scholarships of $500 each, one for students entering the Fourth year and one for students entering the Fifth year of the Mining Engineering course. The scholarships are awarded by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Chairman of the Department of Mining Engineering on the basis of academic ability, personality, need, and general suitability for a career in mining.

MOBIL OIL OF CANADA, LTD. SCHOLARSHIP IN ENGINEERING.—This scholarship of $400 is open to students entering the final year of Mining or Civil Engineering, with preference being given to Mining Engineering. It is awarded by the Scholarships Committee of the Faculty of Engineering upon the recommendations of the Departments concerned on the basis of good character, academic standing, ability to cooperate with associates, breadth of interest, initiative, and willingness to assume responsibility.

ORENDA ENGINES LIMITED SCHOLARSHIPS.—Three scholarships of $500 each have been established by Orenda Engines Limited, Toronto, Ontario, for students having completed the Second, Third, or Fourth year in Chemical, Civil, Electrical, Mechanical, Metallurgical Engineering, or Engineering Physics. One scholarship will be awarded in each of the Third, Fourth, and Fifth years on the basis of high academic standing with preference being given to students who show initiative and leadership qualities. The scholarships are not necessarily renewable, but three scholarships will be awarded in each session. The holders of these scholarships may hold other monetary awards of the annual value of not more than $100.

JOHNSON'S WAX SCHOLARSHIP,—A scholarship of the total value of $1,800 ($600 a year for three years) is awarded each year to a student who has completed the Second year in the Faculty of Engineering and is entering the Third year course in Chemical Engineering. This scholarship is awarded by the Faculty of Engineering and will be renewed until the holder graduates provided his or her academic standing is

sufficiently high. The award is made mainly on the basis of academic standing but the general qualifications of the candidates for the engineering profession and their need for financial help shall also be considered. No applications are necessary.

BOND METAL FINISHERS LIMITED SCHOLARSHIP.—This scholarship of $750 has been established by Bond Metal Finishers Limited for a student entering the Third year of Metallurgical Engineering. The award, which may be divided, is made by the Scholarships Committee of the Faculty of Engineering on the recommendation of the Chairman of the Department of Metallurgical Engineering. The student must be in the Third year of Metallurgical Engineering, must have a good academic record and show definite promise of general success as an engineer.

R. C. E. MEMORIAL SCHOLARSHIPS.—These Scholarships of $125 each have been established by the Royal Canadian Engineers and are tenable for one year at a number of universities throughout Canada. One award is open to students at McGill University who have successfully completed their second-to-last year in the courses leading to the degree of Bachelor of Engineering or Bachelor of Architecture. Candidates must be members in good standing of the C.O.T.C. and must have successfully completed at least one summer season's training with such unit or as a member of such unit. R.O.T.P. members and ex-members of the C.O.T.C. who have successfully completed three years of C.O.T.C. training and have transferred to the Canadian Army (Militia) or (Supplementary Reserve) are also eligible. Academic standing, qualities of leadership, and participation in C.O.T.C. and student activities are taken into consideration in making this award. Candidates must be recommended by the University. Further information and application forms may be obtained from the Registrar's office. Applications must be submitted to the Registrar by March 15th.

PROVINCE OF QUEBEC MINING BURSARIES.—Each year the Department of Mines of the Province of Quebec offers a number of bursaries to enable students to take a university course in mining engineering or metallurgical engineering. The maximum annual value of these scholarships is $650 for a student who has to live away from home in order to attend the University, and $400 for a student who can live at home. Candidates must be Canadians and have lived for at least five years in the Province of Quebec. Further information may be obtained from the Registrar's Office. These bursaries are also open to graduate students in Metallurgy, Mining Engineering, and Geology.

A. F. BYERS BURSARY.—This Bursary of $300 is awarded by the University Scholarships Committee on the recommendation of the Scholarships Committee of the Faculty of Engineering to a student in Engineering

who has a good academic record and has need of financial assistance. It is renewable annually until the holder graduates provided he maintains a satisfactory academic standard and continues to need financial help. Applications should be made to the office of the Dean.

For information concerning bursaries open to undergraduates in all Faculties see page 622.

PRIZES AND MEDALS

BRITISH ASSOCIATION PRIZES.—Two British Association prizes of $40 and $20 are awarded to the students obtaining the highest, and the second highest, aggregate marks, respectively, in the sessional examinations in Calculus and Mechanics of the Third year.

SCOTT EXHIBITION.—A Scott exhibition of $35, founded by the Caledonian Society of Montreal, in commemoration of the centenary of Sir Walter Scott, and a British Association prize of $20, are awarded to the students obtaining the highest, and the second highest aggregate marks, respectively, in the sessional examinations in Mathematics, Mechanics, Descriptive Geometry, and Physics of the Second year.

CORPORATION OF QUEBEC LAND SURVEYORS PRIZE.—A prize of $25 open to students in Civil Engineering and awarded at the end of the Fourth year by the Corporation of Quebec Land Surveyors to the student obtaining the highest standing in the subjects of the undergraduate courses in engineering comprising Surveying, up to the end of the Fourth year.

ANGLIN-NORCROSS PRIZE.—A prize of $25, presented by the Anglin-Norcross Corporation Limited, awarded to the student obtaining the highest mark in Architectural Drawing in the Second year of the School of Architecture. This award is granted only to students whose record enables them to proceed to the next higher year.

ANGLIN-NORCROSS PRIZE.—A prize of $25, presented by the Anglin-Norcross Corporation Limited, awarded to the student obtaining the highest marks in the Fourth year course in Design of Buildings (Design A) in the School of Architecture.

SOCIETY OF CHEMICAL INDUSTRY STUDENT PRIZES.—Two Montreal Prizes of $50 and $25 are offered by the Canadian Section of the Society of Chemical Industry to be competed for annually by bona-fide undergraduate students of McGill University, the University of Montreal, Macdonald College, and the Ecole Polytechnique. The papers shall be on a chemical subject coming under one of the following groups: (a) original laboratory work or original plant work; (b) original literature review; (c) critical study of plants and plant operations or chemical processes; (d) critical study

of laboratory procedures; (e) any other subject (chemical) involving originality. Entries must be submitted to the Secretary, Canadian Section, Society of Chemical Industry, Room 800, 420 Lagauchetiere St. West, Montreal, not later than April 1st of each year.

INSTITUTE OF RADIO ENGINEERS PRIZES.—Each year two prizes will be offered to students of McGill and other approved universities for the best papers on radio engineering or some closely allied subject. The first prize is $25 and the second prize is a student membership in the Institute of Radio Engineers for a period of two years. Essays, which may be written in French or English, must reach the office of the Dean of the Faculty of Engineering not later than the 30th of November.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

MCCHARLES PRIZE.—This prize of $1,000, gift of the late Aeneas McCharles, is given for the discovery of improved methods of treating Canadian ores or minerals, for the development of new life-saving devices in the power and light industry, or for notable achievement in scientific research in any useful practical line, and is open to any Canadian. Further information may be obtained from the Registrar's Office.

BRITISH ASSOCIATION MEDAL.—This medal is open for competition to students of the graduating class in each of the Engineering courses, and, if the examiners so recommend, will be awarded to the student taking the highest position in the final examinations. The British Association Medals were founded by the British Association for the Advancement of Science in commemoration of its meeting held in Montreal in 1884.

ERNEST BROWN GOLD MEDAL.—This medal was founded by the late Mrs. Ernest Brown in 1952 in memory of her husband the late Ernest Brown, M.Sc., M.Eng., D.Eng., Dean of the Faculty of Engineering from 1930 to 1942. It is awarded to the student in the graduating class in any of the Departments of Engineering who has shown the highest ability throughout his undergraduate course. In making the award, while academic standing is of primary importance, account is also taken of qualities of leadership and ability to work with others.

LIEUTENANT-GOVERNOR'S GOLD MEDAL.—Awarded to the student ranking highest in the Graduating Class in Architecture, provided his work is considered of sufficient merit.

LIEUTENANT-GOVERNOR'S SILVER MEDAL.—Awarded to the student obtaining the second place in the Graduating Class in Architecture, provided his work is considered of sufficient merit.

ROYAL ARCHITECTURAL INSTITUTE OF CANADA MEDAL.—A medal is offered annually to the student who has completed the entire course at a recognized School of Architecture, has obtained high marks throughout his course, and who gives promise of being an architect of distinction after graduation. British subjects only are eligible for this award.

LOUIS ROBERTSON PRIZE.—Founded by Mr. and Mrs. John A. Robertson, in memory of their son, John Louis Armour Robertson, who was killed in the Great War on July 18th, 1916, to be awarded in the form of books to the graduating student who ranks highest in Design in the final year of the School of Architecture.

PHILIP J. TURNER PRIZE.—A prize of $70 presented by Mr. A. B. Darbyson, a graduate in the School of Architecture of the Class of 1915, to the student obtaining the highest marks in Building Construction of the Third year course in Architecture.

ROBERT FORSYTH PRIZE IN CIVIL ENGINEERING.—Under the will of the late Miss Jeanie Forsyth a prize of $40 is awarded each year, if the examiners so recommend, to a "worthy and needy" student of the graduating class who secures high standing in the subjects of Theory of Structures and Strength of Materials.

ELECTRICAL MANUFACTURING CO. LTD. PRIZE.—The Electrical Manufacturing Co. Ltd. of Montmagny, Quebec, offers a prize of $25 to the top ranking graduating student in the Power Option of the Electrical Engineering course. This prize is awarded by the Department of Electrical Engineering.

PRIZES FOR SUMMER ESSAYS

ENGINEERING INSTITUTE OF CANADA PRIZES.—The Engineering Institute of Canada offers each year a prize of books or instruments to the value of $25 for the best paper in any branch of engineering received from an English-speaking Junior of the Institute in the Province of Quebec. This prize is known as the Phelps Johnson Prize; another of the same value, the Ernest Marceau Prize, is awarded for the best paper in French. Similar prizes are open to those located in other provinces. The successful papers become part of the literature of the Institute and place the authors in prominent touch with the engineering profession. Further particulars may be obtained from L. Austin Wright, General Secretary, 2050 Mansfield Street, Montreal.

ENGINEERING INSTITUTE OF CANADA PRIZE.—The Engineering Institute of Canada also offers each year a prize of $25 to the student of the Fourth year whose standing, considered in combination with his activities in student engineering organizations, is, in the opinion of the Faculty, most meritorious.

CANADIAN INSTITUTE OF MINING AND METALLURGY PRIZES.—Two prizes, one of $50 and one of $25, for, respectively, the first and second best essay prepared by undergraduate students before receiving a Bachelor's degree on a subject appropriate to any one of the Institute's Technical Divisions, namely the Coal Division, the Geology Division, the Industrial Minerals Division, the Metallurgy Division, the Metal Mining Division, and the Petroleum and Natural Gas Division.

UNDERGRADUATE SOCIETY'S PRIZES.—Three book prizes to the value of $10 are given by the Undergraduate Society of the Faculty of Engineering for the best summer essays submitted by students in the Fourth and Fifth years.

In addition, two book prizes to the value of $10 are given by the Society for summer essays submitted by students entering the Third year.

The following regulations apply: (1) the Faculty will correct and grade the summer essays in the usual way, (2) when the classification is completed a list of those essays worthy of consideration by the Prize Committee will be posted, (3) essays awarded prizes will *ipso facto* become the property of the Engineering Undergraduate Society and will be bound by the Society and kept in the Engineering Library, and (4) a notice, to accompany the list of essays considered, will be posted stating that among the students considered those wishing to compete for the prizes should signify their intention to do so by writing to the Faculty, mentioning clearly that they accept condition No. 3.

JAMES DICKIE HALL PRIZES.—Two prizes were established by Oliver Hall in memory of his son, James Dickie Hall, lost near Cannes in June 1944, in an air battle between four R.C.A.F. and more than ninety enemy planes. These prizes of $50 each, one in Mining and one in Metallurgy, are open to students entering the Fourth or Fifth years of these courses and are awarded for the best summer essay in each department. Prizes will not be awarded unless the essays are of high quality.

TURNBULL ELEVATOR COMPANY LIMITED PRIZES.—Four prizes of $62.50 each have been provided by the Turnbull Elevator Company Limited of Toronto for students of the School of Architecture who submit the best summer essays in their particular year.

AMERICAN SOCIETY OF HEATING AND AIRCONDITIONING ENGINEERS PRIZE.—This prize of $25 and a copy of the A.S.H.A.E. Guide is awarded by the Department of Mechanical Engineering for the best summer essay in Mechanical Engineering on Heating and Air Conditioning topics.

QUEBEC ROAD BUILDERS ASSOCIATION PRIZE.—A prize, or prizes, totalling $150, is offered annually by the Quebec Road Builders Association to the student or students submitting summer essays as part of their regular

assignments and who select a topic related to the soil engineering aspects of road building.

LOAN FUNDS

GEORGE HENRY FROST FUND.—Founded by the late G. H. Frost, B.Sc. 60, to aid students who, when commencing the work of the Fourth year or a subsequent year in the Faculty of Engineering, require financial assistance. In making loans from this fund the academic standing of the applicants is considered. Applications should be made to the Dean.

WADDELL LOAN FUND.—Founded by the late J. B. Waddell, Esq. Loans are made under the same conditions as apply to the George Henry Frost Fund, except that the benefits are available to graduate students as well as to undergraduates. Applications should be made to the Dean.

CANADIAN INSTITUTE OF MINING AND METALLURGY LOAN FUND.—Founded by the Montreal Women's Auxiliary of that organization for the assistance of Engineering students in Mining, Metallurgy, Geology, and allied subjects. Applications should be made to the Dean.

BENNETT EDUCATIONAL FUND.—Students in Engineering are eligible for loans from the Bennett Educational Fund of the Engineering Institute of Canada. Application forms may be obtained from the Office of the Dean. Loans from this fund are made normally only to students in upper years.

ISABELLA MCLENNAN BURSARY AND LOAN FUND (see page 630).

SCIENCE '25 MEMORIAL LOAN FUND.—Established in 1955 by the Class of Science '25 to provide loans for undergraduate students in Engineering. Applications should be made to the Dean.

OTHER LOAN FUNDS (see page 629).

For awards open to Graduate Students see page 689.

H. OPEN TO STUDENTS IN THE FACULTY OF MEDICINE

For scholarships, bursaries, and loan funds open to undergraduates in all faculties see page 622.

MEDALS

HOLMES GOLD MEDAL.—Founded by the Medical Faculty in the year 1865, as a memorial of the late Andrew Holmes, M.D., LL.D., sometime Dean of the Faculty of Medicine, this medal is awarded to the student graduating with the highest aggregate number of marks in the different branches comprised in the medical curriculum.

The student who wins the Holmes Medal has the option of exchanging it for a bronze and the money equivalent of the gold medal.

WOOD GOLD MEDAL.—Founded by Casey A. Wood, M.D., LL.D., this medal is awarded to the student graduating with the highest aggregate number of marks in the oral and practical examinations in the clinical subjects of the Final year. The winner of the Holmes Medal is ineligible for this medal.

SUTHERLAND GOLD MEDAL.—This medal, founded in 1878 by the late Mrs. Sutherland in memory of her husband, William Sutherland, M.D., formerly Professor of Chemistry in this Faculty, is awarded for the best examination in Biochemistry, together with a creditable examination in the primary branches.

LIEUTENANT-GOVERNOR'S GOLD MEDAL.—This medal is awarded to the student of the final year who, in the opinion of the Chairman of the Department of Health and Social Medicine, is most proficient in that subject.

LIEUTENANT-GOVERNOR'S SILVER MEDAL.—This medal is awarded to the student who obtains the highest standing in the final examination in Physiology.

WALTER CHIPMAN GOLD MEDAL.—This medal, founded by the late Max Strean in honour of Dr. W. W. Chipman, is awarded to the student obtaining the highest aggregate standing in Obstetrics and Gynaecology throughout the medical course.

PRIZES

JOSEPH HILS PRIZE.—(Founded by the late Dr. Joseph Hils, of Woonsocket, R.I.)—A prize in books, awarded to the student who obtains the highest number of marks in the subject of Pharmacology.

JOSEPH MORLEY DRAKE PRIZE.—(Founded by the late Joseph Morley Drake, M.D.)—A prize of $50 in books, to be awarded to the student who obtains the highest number of marks at the final examination in Pathology.

PRIMARY PRIZE.—A prize in books awarded for the best aggregate standing in the subjects of the first two years.

F. SLATER JACKSON PRIZE.—A prize of $35 founded by Mr. and Mrs. H. F. Jackson in memory of their son, the late F. Slater Jackson, M.D. The prize is awarded to the student who obtains the highest standing in the final examinations in Histology.

SAMUEL ROSENFELD PRIZE.—A prize of $50 for the highest standing in Bacteriology and Immunology.

PRIZE IN MEDICAL JURISPRUDENCE AND TOXICOLOGY.—This prize of $40 was established in 1954 and is awarded to the student who obtains the highest standing in Medical Jurisprudence and Toxicology.

ALEXANDER D. STEWART PRIZE.—An annual prize in books, founded by the late W. Grant Stewart (Arts 1885, Med. 1888) in memory of his brother, the late Alexander D. Stewart (Med. 1888), to be awarded to the member of the graduating class who, in the opinion of the Faculty, presents in every respect the highest qualifications to practise his profession.

ROBERT FORSYTH PRIZE.—Under the will of the late Miss Jeanie Forsyth a prize of $40 is awarded each year to a student who, upon graduation, has shown particular ability in all branches of Surgery.

CAMPBELL KEENAN MEMORIAL PRIZE IN CLINICAL SURGERY.—An annual prize of $50 has been established by Miss Charlotte Mildred Hagar in memory of the late Dr. Campbell B. Keenan. The prize will be awarded to the student in the graduating class who has shown the highest proficiency in Clinical Surgery as determined by the Chairman of the Department of Surgery. The winner of the Robert Forsyth Prize in Surgery is ineligible for this award.

JOHN MUNRO ELDER PRIZE.—An annual prize of $25 founded in 1935 by Aubrey H. Elder, Q.C., in memory of his father, John M. Elder, C.M.G., M.D., C.M., sometime Assistant Professor of Surgery in the Faculty. The prize is awarded to the student who obtains the highest standing in the final examinations, written and oral, in Anatomy.

CAMPBELL HOWARD PRIZE IN CLINICAL MEDICINE.—An annual prize of $50 founded by Mrs. Campbell Howard, in memory of her husband, the late Dr. Campbell P. Howard, Professor of Medicine at McGill University. The prize is awarded to the student who shows the most consistent excellence in his written case reports in the subject of Clinical Medicine.

COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF QUEBEC PRIZE IN MEDICINE AND PATHOLOGY.—This prize of $100 is awarded to the student who obtains the highest standing in the final examinations in Medicine and Pathology. The recipient of this prize must be registered as a student in Medicine with the College of Physicians and Surgeons of the Province of Quebec.

COLLEGE OF PHYSICIANS AND SURGEONS OF THE PROVINCE OF QUEBEC PRIZE IN PAEDIATRICS.—This prize of $100 is awarded to the student who obtains the highest standing in the final examination in Paediatrics. The recipient of this prize must be registered as a student in Medicine with the College of Physicians and Surgeons of the Province of Quebec.

MONA BRONFMAN SHECKMAN PRIZE.—Awarded to the student who obtains the highest standing in Psychiatry in the final year.

ELECTRODESIGN PRIZE.—A prize of $25 for the highest standing in the Physiology section of the Second year course in Anatomy and Physiology of the Central Nervous System.

PRIZE IN PSYCHIATRY.—This prize of $50 in books is awarded annually to the Third year Medical student who, in the opinion of the Awards Committee of the Department of Psychiatry, submits the best essay upon a subject to be set each year.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

SCHOLARSHIPS AND BURSARIES

UNIVERSITY SCHOLARSHIPS (see page 608).

FREDERICK SMITH MEMORIAL SCHOLARSHIP.—One University Scholarship known as the Frederick Smith Memorial Scholarship is awarded only to students in the Faculty of Medicine.

DR. MAUDE E. SEYMOUR ABBOTT SCHOLARSHIPS.—Established in 1938 by an anonymous donation of $10,000 in honour of the late Maude E. Seymour Abbott, B.A., M.D., F.R.C.P. (Canada), LL.D. (McGill), to commemorate her distinguished work in connexion with the history of Canadian medicine, the Sir William Osler Pathological Collection, and her outstanding research in congenital cardiac disease.

The revenue of this fund is used for the provision of scholarships to be awarded by the University to an undergraduate in the Faculty of Medicine. While men and women are both eligible for the awards, women candidates will be given the preference. The amount of the awards will vary according to the needs of the winners. Applications in writing must reach the Secretary of the Faculty before June 30th.

J. H. B. ALLAN SCHOLARSHIP.—This scholarship of $400 is available to undergraduate students in any year and is awarded by the Scholarships Committee of the Faculty of Medicine on the basis of scholarship and financial need. No application is required.

WALTER J. HOARE MEMORIAL SCHOLARSHIP.—This scholarship was endowed by the late Dr. Charles W. Hoare, a graduate of McGill University, in memory of his son, Walter J. Hoare, who was killed in World War I. It is open annually to pupils of the Collegiate Institutes of the counties of Essex, Kent and Lambton entering the Faculty of Medicine. If there

are no qualified candidates in this preferred class, the scholarship may be awarded to another candidate nominated by the Faculty of Medicine. Applications in writing must reach the Secretary of the Faculty before June 30th.

JAMES GRAHAME KER AND FREDERICK K. PETRIE MEMORIAL SCHOLARSHIP.—This scholarship of $400 is awarded annually to the student from Eastern Ontario (Counties of Dundas, Stormont, Glengarry, Grenville, Carleton, Russell, and Prescott) or from the city of Montreal, who, in the examinations of the First year of the medical course secures the highest academic standing. The Faculty of Medicine may, however, if they see fit, award this scholarship to the same student during the Third and Fourth years.

KEITH HUTCHISON MEMORIAL SCHOLARSHIPS.—In memory of the late Dr. Keith Hutchison, two scholarships have been established in the Faculty of Medicine. Their normal value is $400 each per annum, but this is subject to adjustment at the Faculty's discretion in the light of the holder's financial needs. The scholarships are tenable in any year of the course and will be awarded on the basis of distinguished academic standing and financial need. The holder of a scholarship in any one session is eligible to re-apply for the following year. Applications in writing must reach the Secretary of the Faculty before June 30th.

CAMPBELL KEENAN MEMORIAL SCHOLARSHIP.—This scholarship, having a normal value of $150 a year, has been established by Miss Charlotte Mildred Hagar in memory of the late Dr. Campbell B. Keenan. It is tenable in the Second, Third, or Fourth year of the course in Medicine and is awarded on the basis of distinguished academic standing and financial need. The award will be made to an applicant who has expressed the intention eventually of entering surgical practice. The holder of the scholarship in any one session is eligible to re-apply for a subsequent session. Applications in writing must reach the Secretary of the Faculty before June 30th.

ROBERT SHARWOOD MEMORIAL SCHOLARSHIP.—In memory of the late Mr. Robert Sharwood a scholarship has been established in the Faculty of Medicine. Its normal value is $400 per annum, but this is subject to adjustment at the Faculty's discretion in the light of the holder's financial needs. The scholarship is tenable in any year of the undergraduate course in Medicine and will be awarded on the basis of distinguished academic standing and financial need. The holder of the scholarship in any one session is eligible to re-apply for the following year.

SAMUEL ROSENFELD SCHOLARSHIP.—This scholarship of $150 will be awarded to a student entering the Second year, on the basis of scholarship and need. No application is required.

SIR EDWARD W. BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS.—A fund of $100,000 has been established under the will of the late Dr. Henry Albert Beatty, the income from which is to support two scholarships, not necessarily of equal value, to be awarded annually to students of either sex and of any nationality, who must be registered in the Faculty of Medicine as candidates for the M.D.,C.M. degree or for one of the postgraduate Diplomas in a clinical specialty. The holder is expected to devote his year of tenure either to research or to some form of special training excluding the normal training toward the M.D.,C.M. and excluding any of the years of residency training required in the Diploma courses. In the case of students who hold or are working towards the McGill M.D.,C.M. the award may be held at any approved institution in Canada or abroad. For other qualified students the award must be held at McGill University. These scholarships will be awarded by the Faculty of Medicine. Awards will not be made unless suitable candidates present themselves. Applications should be made to the Secretary of the Faculty of Medicine on the forms provided for this purpose on or before February 1st of the year in which the scholarship is to commence.

SAVORY BURSARY.—This bursary of $100 is tenable in the Second, Third, or Fourth year, without other restriction. Applications should be made to the Secretary of the Faculty before June 20th on forms obtainable from the Registrar's Office.

BRUCE SMITH BURSARY FUND.—This fund was set up by a bequest from the late Dr. Bruce Stewart Smith. It is "to assist poor but worthy medical students to complete medical training at McGill University." Application in writing should be made to the Secretary of the Faculty.

G. J. PICKLEMAN BURSARY.—This bursary of $100 was established in 1956 by Mr. G. J. Pickleman and is available to undergraduate students in any year. It is awarded by the Scholarships Committee of the Faculty of Medicine on the basis of distinguished academic standing and financial need.

LOAN FUNDS

KELLOGG LOAN FUND.—Loans up to a maximum of $500 in any one year may be granted to students in good standing who require such assistance from a fund given to the Faculty by the Kellogg Foundation. The regulations and the application forms are the same as for other loan funds controlled by the University. Applicants should consult Dean D. L. Thomson, Chairman of the Scholarships Committee of the Faculty of Medicine; forms may be obtained from the Secretary of the Faculty.

BOSWELL JAMES LOAN FUND.—This fund was established in 1943 by Dr. A. Boswell James and is available to undergraduates and graduates.

WESTON FAY VOLBERG JR. MEMORIAL LOAN FUND.—This fund was established in 1956 by classmates of the late Weston Fay Volberg, Jr., M.D., C.M. 1953, and is available to medical students.

OTHER LOAN FUNDS.—For loan funds open to students in all faculties see page 629.

For awards open to Graduates in Medicine see pages 689, 694, 702, 704.

OPEN TO STUDENTS IN THE FACULTY OF DENTISTRY

For scholarships and bursaries open to undergraduates in all Faculties see page 622.

SCHOLARSHIPS

UNIVERSITY SCHOLARSHIPS (see page 608).

INTERNATIONAL COLLEGE OF DENTISTS (CANADIAN SECTION) SCHOLARSHIP.—This scholarship of $100 has been established by the International College of Dentists (Canadian Section) and is awarded annually by the Faculty of Dentistry to a student who has completed the Third year and is entering the Fourth year. The award is based on scholastic record in the Third year, general character, and participation in extra-curricular activities. No application is required.

CANADIAN DENTAL ASSOCIATION WAR MEMORIAL SCHOLARSHIP AWARD: First Prize $125.00; Second Prize $75.00. To be awarded annually.

The contest is open to all undergraduates of the final year who have been in attendance for at least two years at Canadian Dental Schools. The essay shall consist of 4,000 words.

Correspondence relative to this scholarship should be addressed to The Secretary, Canadian Dental Association, 234 St. George St., Toronto.

MEDALS AND PRIZES

MONTREAL DENTAL CLUB GOLD MEDAL AND A PRIZE IN BOOKS.—Awarded to the student in the final year who stands first in the science and practice of Dentistry. The standing is determined not only by the written and practical examinations at the end of the year, but by the general work of the student during the four years.

COLLEGE OF DENTAL SURGEONS OF THE PROVINCE OF QUEBEC PRIZE.—The Kenneth Carver Prize of twenty-five dollars is awarded to the student, registered in Quebec, obtaining the highest standing in the practical examinations of the final year.

LIEUTENANT-GOVERNOR'S GOLD MEDAL AND A PRIZE IN BOOKS.—Awarded to the student in the final year who stands second in the class. The standing is determined in a manner similar to that followed in the awarding of the Montreal Dental Club Gold Medal.

LIEUTENANT-GOVERNOR'S SILVER MEDAL AND A PRIZE IN BOOKS.—Awarded to the student obtaining the highest marks in written and practical subjects in the Third year examinations.

MONTREAL ENDODONTIA SOCIETY BOOK PRIZE.—Awarded to the student in the final year showing the greatest aptitude in this subject.

AMERICAN SOCIETY OF DENTAL MEDICINE (MONTREAL SECTION) BOOK PRIZE.—Awarded to the student in the final year obtaining the highest standing in Dental Medicine.

MONTREAL DENTAL CLUB PRIZES.—First, Second, and Third year prizes in money given by the Montreal Dental Club and awarded to the students obtaining the highest standing in the following technique subjects: First year, Dental Anatomy; Second year, to be chosen each year; Third year, Orthodontia Technique.

MOUNT ROYAL DENTAL SOCIETY PRIZES.—Prizes in books awarded to the students obtaining the highest standings in the sessional examinations in the First, Second and Third years.

DORION PRIZES.—Two prizes in money given by Dr. Eugene S. Dorion, one in Second and one in Third year, are awarded to the students obtaining the highest standing in an essay on Roentgenology.

DR. I. K. LOWRY PRIZES.—Prizes of medical dictionaries are awarded to the two students in the Second year who obtain the highest marks in Oral Histology and Embryology.

DR. M. J. T. DOHAN PRIZE.—This prize of $25 in Pedodontics was established in 1955 by Dr. M. J. T. Dohan.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

LOAN FUNDS

KELLOGG LOAN FUND.—A sum of money has been placed at the disposal of the Faculty of Dentistry by the Kellogg Foundation to assist dental students who have real financial need and are not eligible for assistance under other bursary and loan schemes. Applicants should consult the Dean of the Faculty of Dentistry.

W. R. AIRD LOAN FUND.—Established in 1952 for students in Dentistry. Applications should be made to the Dean.

OTHER LOAN FUNDS.—For loan funds open to students in all faculties see page 629.

J. OPEN TO STUDENTS IN THE FACULTY OF LAW

For scholarships and bursaries open to undergraduates in all Faculties see page 622.

SCHOLARSHIPS AND PRIZES

UNIVERSITY SCHOLARSHIPS (see page 608.)

CHIEF JUSTICE R. A. E. GREENSHIELDS MEMORIAL SCHOLARSHIPS.—These scholarships were founded by the will of the late Mrs. R. A. E. Greenshields in memory of her husband, the late Chief Justice Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law. Two scholarships of the value of $400 each are awarded annually to students entering the Faculty of Law and are renewable in each of the two upper years leading to the Bachelor of Civil Law degree, provided that the student's conduct is satisfactory and that he maintains at least a high Second Class standing, or in the opinion of the Faculty is for other reasons entitled to its renewal. Candidates must satisfy the regular requirements for admission to the Faculty, must have earned a scholastic standing of at least high Second Class, and preferably First Class at the University or Institution which they previously attended, and must furnish evidence of the necessity of financial assistance in order to be able to take up the study of law. Although fluency in both English and French is not essential, preference will normally be given to an applicant who has a good working knowledge of both languages. Application should be made to the Secretary of the Faculty.

THOMAS ALEXANDER ROWAT SCHOLARSHIP.—This scholarship of $125 was founded by Mr. Donald McKenzie Rowat, N.P., in memory of his brother, Lieutenant Thomas Alexander Rowat, B.C.L., who was killed in action at Lens, France, on the 28th June, 1917. It is awarded in alternate years for proficiency in the French language and in the old French law. Candidates must be British subjects of Anglo-Saxon origin.

MAURICE GOLDENBERG MEMORIAL SCHOLARSHIP.—This scholarship of $100 in Government, Constitutional Law, or Public Administration has been established by Mr. H. Carl Goldenberg in memory of his father, the late Maurice Goldenberg. It is awarded annually by the University Scholarships Committee to the best candidate amongst those nominated by the

Faculty of Arts and Science and the Faculty of Law. The scholarship is open to both men and women with no restriction as to race, creed, or colour.

ALEXANDER SCHOLARSHIP.—This scholarship of $45 was established in 1950 under the will of the late Maurice Alexander, C.M.G., K.C., of London, England, as a token of esteem for the late Sir Charles Peers Davidson, former Professor of Criminal Law at McGill University. It is awarded annually to a student selected by the Faculty.

MACDONALD TRAVELLING SCHOLARSHIP (see page 701).

CHARLES ALBERT NUTTING PRIZE.—Founded in 1930 by Miss Adelaide Nutting, M.A., R.N., in memory of her brother, Charles Albert Nutting, K.C., B.C.L., who graduated from the Faculty in 1872. The value of the prize is $70. It is awarded to the student in the First or Second year submitting the best essay on a topic related to legal history, the topic to be fixed in advance by the Faculty.

CARSWELL PRIZES.—Two prizes of $30 each in books were established in 1948 by the Carswell Company, Toronto, Ontario, and are awarded to First or Second year students at the discretion of the Faculty.

READING SOCIETY OF MONTREAL PRIZE.—A prize of $50 established in 1952 by the Reading Society of Montreal to be awarded annually to the student who obtains the highest standing in the First year.

ALEXANDER MORRIS EXHIBITION.—This exhibition of the value of $50, founded in memory of the late Hon. Alexander Morris, M.A., D.C.L., of Toronto, will be awarded to the student who obtains the highest standing in the Second year.

ADOLPHE MAILHIOT MEMORIAL PRIZE.—This prize established by Mr. and Mrs. J. N. Mailhiot, of Victoriaville, P.Q., in 1927, consists of a prize of law books to be given annually to a student selected by the Faculty.

MONTREAL BAR ASSOCIATION PRIZE.—The Montreal Bar Association offers a prize of $50 to the student who obtains the highest standing in Civil Law, and the Junior Bar Association offers a prize of $15 to the student who obtains the best marks in Civil Procedure in the final year.

CHIEF JUSTICE GREENSHIELDS PRIZE.—This prize in Criminal Law endowed by Mrs. Greenshields in 1943 in memory of her husband, the late Chief Justice Robert Alfred Ernest Greenshields, is awarded to the member of the graduating class in Law having the highest standing in Criminal Law throughout the college course. The value of the prize is $40.

JOHN E. CRANKSHAW PRIZE.—Established by friends of the late John E. Crankshaw, Q.C., formerly lecturer in Criminal Law at McGill University.

The prize consists of an Advocate's Gown, a copy of the Annotated Criminal Code, and, revenue permitting, the year's Bar Fee. It is to be awarded to the student who has obtained the highest standing in Criminal Law subjects at McGill University and has passed his final examination for admission to the Bar of the Province of Quebec.

"I.M.E." PRIZE IN COMMERCIAL LAW.—A prize of $70 in law books awarded annually to the member of the graduating class having the highest standing in Commercial Law throughout the course.

H. E. HERSCHORN PRIZE.—A prize of $100 given annually by Mr. H. E. Herschorn, N.P., B.A. 1911, B.C.L. 1914, and awarded to the highest ranking graduating student who intends to enter the Notarial profession.

FACULTY ESSAY PRIZES.—Two prizes of $25 each are awarded annually to the students writing the best essays in the Third year.

CHESTER MACNAGHTEN PRIZES (see page 628).

J. M. RUTHERFORD MEMORIAL PRIZE (see page 628).

MEDALS

ELIZABETH TORRANCE GOLD MEDAL.—Founded in 1864 by Professor John Torrance in memory of his wife, this medal is awarded to the student who obtains the highest marks in the final examinations.

I. BALLON MEMORIAL MEDAL.—This medal was established in 1955 by Mrs. I. Ballon in memory of her husband, the late Isidore Ballon, B.A. 1907, B.C.L. 1908, and is awarded annually to the student obtaining the highest standing in the Fourth year examinations.

No medals, prizes or scholarships will be awarded if, in the opinion of the Faculty, there is no candidate of sufficient merit.

LOAN FUNDS

A. FLEMING LOAN FUND.—Established in 1954 by Mr. A. Fleming to aid students in the Faculty of Law. Application should be made to the Dean.

OTHER LOAN FUNDS.—For loan funds open to students in all faculties see page 629.

For awards open to Graduate Students see pages 694 and 701.

K. OPEN TO STUDENTS IN THE FACULTY OF MUSIC

SIR WILLIAM PETERSON MEMORIAL SCHOLARSHIPS.—Established in 1921 by the University and by friends, graduates and pupils of the Faculty of Music. The interest upon the original endowment of $6,055 is used to

support scholarships in Music as a memorial to the late Sir William Peterson. For further details consult the Secretary of the Faculty.

SIR WILLIAM MACDONALD MEMORIAL SCHOLARSHIPS.—Established in 1922 by the University. The interest upon the original endowment of $6,000 is used to support scholarships in Music as a memorial to the late Sir William Macdonald. For further details consult the Secretary of the Faculty.

ELLEN BALLON PIANO SCHOLARSHIP.—Founded in 1928 by a gift of $1,500 from Miss Ellen Ballon, a graduate of the Conservatorium. The principal has been increased by a further gift of $1,500 from Miss Ballon. In making this award the Faculty takes into account the need as well as the ability of candidates.

RESSLER MEMORIAL SCHOLARSHIP.—Founded in 1950 by the late Mr. H. R. Ressler for violinists.

MARION MAGOR SCHOLARSHIP.—Founded in 1953 by the family of the late Mrs. R. J. Magor for students entering the Second year of the Bachelor of Music course.

JULIUS BLOCK SCHOLARSHIP.—Founded in 1953 by Mr. J. Julius Block for pianists.

CUMMINGS FOUNDATION SCHOLARSHIP.—Founded in 1954 for pianists.

DONALDA PRIZE.—Founded by a gift of $2,500 from Madame Pauline Donalda.

GLADYS GLASSCO MEMORIAL LOAN FUND.—A loan fund for students in the Faculty of Music, established in 1954 by Mr. Gordon B. Glassco in memory of his wife. Application should be made to the Secretary of the Faculty.

UNIVERSITY BURSARIES.—Full-time students studying for the Licentiate in Music or for the Bachelor of Music degree are eligible for University Bursaries. *For details see page 609.*

L. OPEN TO STUDENTS IN THE FACULTY OF DIVINITY

UNIVERSITY SCHOLARSHIPS (see page 608).

W. M. BIRKS SCHOLARSHIPS.—Three W. M. Birks Scholarships are tenable by students in the Faculty of Divinity who are candidates for the B.D. degree. One of $250 is awarded to the most outstanding student entering the First year of the B.D. course, and two, valued each at $100 are awarded to the students who take highest place in the First and Second years of the course, to be paid during the following session, provided the students are then enrolled as candidates for the B.D. degree. Application

for the entrance scholarship must be received by the Dean of the Faculty of Divinity accompanied by a complete transcript of the candidate's academic record and three supporting letters of recommendation on or before June 30th.

W. M. BIRKS GRADUATE FELLOWSHIP.—This Fellowship of $1,200 is available to a student enrolled in the Faculty of Graduate Studies and Research as a candidate for the degree of Master of Theology (S.T.M.). Minimum requirement is the degree of Bachelor of Arts and in addition, the degree of Bachelor of Divinity or its equivalent from a recognized university, college, or seminary. Applications must be received by the Dean of the Faculty of Divinity, accompanied by a complete transcript of the candidate's academic record, and three supporting letters of recommendation, on or before May 31st.

SAMUEL FINLEY MEMORIAL SCHOLARSHIP.—This scholarship of $120 is available to a student enrolled in the Faculty of Graduate Studies and Research who is pursuing advanced studies in Divinity. Application should be made to the Dean of the Faculty of Divinity on or before May 31st.

HOUSTON SCHOLARSHIP (see page 633).

W. M. BIRKS PRIZE.—A prize of $50 in books awarded to the student who obtains the highest standing in the graduating year.

LOAN FUNDS.—See page 629.

Students of the Faculty of Divinity who are registered also in the Montreal Diocesan Theological College or in the United Theological College will be eligible for prizes, scholarships, and bursaries as announced in the calendars of these institutions.

M. OPEN TO STUDENTS IN MACDONALD COLLEGE

OPEN TO STUDENTS IN AGRICULTURE

UNIVERSITY SCHOLARSHIPS (see page 608).

FACULTY SCHOLARSHIPS AND BURSARIES.—The Faculty of Agriculture has a fund for scholarships and bursaries for degree students. For further particulars apply to the Registrar, Macdonald College.

ELIZA M. JONES SCHOLARSHIP.—Five scholarships have been established by a bequest of the late F. P. Jones in memory of his mother. They are restricted to applicants who are entering the B.Sc. (Agr.) course for the first time. They have a minimum value of $200 and a maximum value of $300 and are renewable from year to year, provided satisfactory academic standing is maintained. Three are reserved for students who

are entering the Third year of the course. Scholarships will be awarded on the basis of academic qualifications. Application forms may be obtained from the Registrar, Macdonald College, and must be submitted before September 1st.

I.O.D.E. SCHOLARSHIP.—A scholarship of $200 ($100 for 2 years) is offered by the Provincial Chapter of the Imperial Order Daughters of the Empire to the British student taking the highest marks in the final examinations of the Second year.

QUEBEC WOMEN'S INSTITUTE BURSARY.—The Institute provides a bursary of $100 to the student entering the Second year of the Diploma Course in Agriculture at Macdonald College, who—

(1) is a professional farmer's son, or daughter, from the Province of Quebec.

(2) has spent at least one season (seed time to harvest) in his father's employ on the farm,

(3) intends to return to his father's farm for at least one year on completion of his course (or to manage his own farm),

(4) and who, if more than one candidate presents himself as fulfilling the above three requirements, takes the highest proficiency in agricultural subjects in the First year or, if he is the only candidate, he obtains at least Class II standing in these subjects.

If no student can qualify for the above, this bursary will be made available as an entrance bursary to the First year of the Diploma Course.

JAMES RIST GORHAM SCHOLARSHIP.—A scholarship of $100 established by the late W. M. Gammon in memory of his friend, James Rist Gorham, B.Sc. (Agr.), killed in action March 17th, 1942. The scholarship will be granted to the student in the General Agriculture option who ranks first in the final examinations of the Third year.

BORDEN COMPANY LIMITED SCHOLARSHIP.—A scholarship of the value of $200 is offered by the Borden Company Limited of Canada to encourage promising students who take a course of study of value to the dairy industry. The award will be made to a student on completion of his Third year, half payable at the beginning of the second term. The following factors will be considered in making the award: high standing in the subjects of his course during the Third year with emphasis on dairying, dairy chemistry, or dairy bacteriology; participation in student organizations and college activities; co-operation with students and staff in the advancement of the interests of the student body and the College as a whole.

STEINBERG BURSARY.—A bursary of $100 offered by Steinberg's Ltd., available to a student in the Third or the Fourth Year of the B.Sc.(Agr.) course. Application should be made to the Registrar before September 1st.

KIWANIS CLUB BURSARIES.—The Kiwanis Club of Montreal offers five bursaries of $100 each for students entering the First year of the Diploma Course. Special consideration is given to members of calf clubs in their home districts, and the bursaries are restricted to students from the districts of Huntingdon, Ormstown, Howick, Cowansville, Lachute, and Arundel.

NOVA SCOTIA COLLEGE OF AGRICULTURE SCHOLARSHIP.—Macdonald College offers an entrance scholarship of $500 to the student of the Nova Scotia College of Agriculture obtaining the highest standing in the work of the Second year of the degree course in that College and subsequently registers in the Third year of the degree course in Agriculture at Macdonald College. The scholarship will be paid in two instalments, half at the beginning of the Third year and half at the beginning of the Fourth year.

FISHER TRUST FUND.—In memory of the late Honourable Sydney A. Fisher, formerly Member of Parliament for Brome County and Minister of Agriculture, Canada, two agricultural scholarships of $75 a year each tenable at Macdonald College for two years are offered, for the Diploma Course in Agriculture, on the following conditions:—

1. The candidates must be sons of farmers in the County of Brome, co-operating in farm activities during the period of their college course.

2. The candidates must be at least sixteen years of age.

3. The candidates must have passed at least grade IX of the High School course.

4. These scholarships will be continued from term to term only upon favourable reports from the Dean of the Faculty of Agriculture.

Applications must be sent, on or before the 1st of October, to the Chairman of the Fisher Trustees, R. F. Cowan, Mansonville, Que.

MORRIS W. WILSON MEMORIAL SCHOLARSHIPS (see page 612).

GENERAL MOTORS SCHOLARSHIPS (see page 613).

DISTRICT OF BEDFORD GRADUATES' SOCIETY SCHOLARSHIP (see page 618).

ST FRANCIS DISTRICT GRADUATES' SOCIETY BURSARY (see page 619).

MONTREAL BRANCH, CANADIAN WOMEN'S PRESS CLUB SCHOLARSHIP IN JOURNALISM (see page 626).

PRIZES AND MEDALS

ROBERT RAYNAULD PRIZES.—Two prizes, of $60 and $40 respectively, are offered by *La Ferme*, a monthly farm magazine published in Montreal, the publisher of which is Robert Raynaud, M.S.A. '28. The prizes are awarded to the students majoring in Agronomy who rank first and second in Agronomy 42—Project. The decision will be based on both the written and oral presentation. Two prizes of $50 each are also offered for students entering the Fourth year of the Agronomy option, one to be awarded to the student with the highest standing in the Plant Breeding phase of the option, the other to the student with the highest standing in the Soil Fertility phase as determined by the results of the Third year examinations.

CHEMICAL INSTITUTE OF CANADA PRIZE.—The Chemical Institute of Canada offers a prize of books to the value of $25 to the student in the Chemistry Option with the highest standing at the end of the Third year.

SOCIETY OF CHEMICAL INDUSTRY STUDENT PRIZES (see page 655).

LOCHHEAD MEMORIAL PRIZE.—In memory of her late husband, William Lochhead, B.A., M.Sc., the first Professor of Biology in Macdonald College, Mrs. Lochhead has established by an endowment of $400, a prize to be awarded to the student, majoring in Entomology, who takes the highest standing in the Fourth year, the prize, in value equal to the proceeds of the endowment for one year, to be in books selected by the winner with the approval of the Head of the Department of Entomology.

CLASS OF 1953 BOOK PRIZE.—Graduates of the class of 1953 (Agriculture and Household Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the Second year curriculum. The prize will be awarded in the B.Sc.(Agr.) course in odd-numbered years; in the B.Sc. (H.Ec.) course in even-numbered years.

GOVERNOR GENERAL'S MEDAL.—His Excellency the Governor General of Canada donates a bronze medal to be awarded to the Second year student who ranks highest in General Proficiency in First and Second year work.

LIEUTENANT-GOVERNOR'S MEDAL.—His Honor the Lieutenant-Governor of the Province of Quebec gives annually a gold medal, which is awarded to the student who takes the highest standing in General Proficiency in the First year of the B.Sc.(Agr.) course.

STERN CUP.—Sir Edward D. Stern, Fan Court, Chertsey, Surrey, England, has donated a silver challenge cup, which is held for one year by the student who makes the highest aggregate in Stock Judging in the final year of the subject.

CUTLER SHIELD.—Mr. Garnet H. Cutler, Professor of Agronomy, Purdue University, Lafayette, Indiana, the first lecturer in Cereal Husbandry, Macdonald College, has donated a bronze challenge shield, which is held for one year by the student majoring in Agronomy, who makes the highest aggregate in the final year.

LA CORPORATION DES AGRONOMES PRIZE.—This prize of $50 has been established by La Corporation des Agronomes and is awarded to a member of the graduating class in the degree course in Agriculture for an essay or undergraduate thesis on an agricultural subject.

CONKLIN TROPHY.—Dr. Raymond L. Conklin has donated a trophy to be held for one year by a student in any year of the degree course who obtains the highest percentage of total marks and who, during the same year, has won a place on the College Rugby team and on one other team sport. The winner's name will be engraved on a shield on the trophy which will be awarded only once to any individual.

LA FERME PRIZE.—Robert Raynauld, M.S.A., Editor of *La Ferme* magazine, offers a prize of $25 for competition among students of the Second year of the Diploma Course who come from farm homes and who intend to return to farming after graduation. The prize will be awarded to the eligible student who presents the best project.

LIEUTENANT-GOVERNOR'S MEDAL.—His Honour the Lieutenant-Governor of the Province of Quebec, gives annually a bronze medal, which is awarded to the student who takes the highest percentage in General Proficiency in the First year of the Diploma Course.

MINISTER OF AGRICULTURE MEDALS.—The Honourable the Minister of Agriculture of the Province of Quebec offers annually two bronze medals in connection with the Diploma Course, Second year class, to be presented to the students ranking first in the Dairy Farming and in the Fruit Farming Groups respectively.

OPEN TO STUDENTS IN THE SCHOOL OF HOUSEHOLD SCIENCE

UNIVERSITY SCHOLARSHIPS (see page 608).

FREDERICA CAMPBELL MACFARLANE SCHOLARSHIP.—A scholarship has been donated by the Quebec Women's Institutes in memory of the late Frederica Campbell Macfarlane, graduate in Institution Administration, 1912, Superintendent of Quebec Women's Institutes from 1913 to 1919. This scholarship is of the value of $100, is open only to students from a rural district of the Province of Quebec, and is awarded to the student in any of the first three years of the Home Economics course who obtains the highest percentage of marks possible in the final examination.

MRS. ALFRED WATT MEMORIAL SCHOLARSHIP.—A scholarship of $100, established by contributions from the Branch Institutes of the Quebec Women's Institutes as a memorial to a distinguished Canadian, Mrs. Alfred Watt, M.B.E. The scholarship is awarded by the Director of the School of Household Science to any deserving student, residing in a rural area of the Province of Quebec, who has successfully passed the final examinations of the First, Second or Third year of the B.Sc.(H.Ec.) course, and who enters the next higher year.

I.O.D.E. BURSARY.—The Imperial Order Daughters of the Empire offers a bursary of $200 to a British student who has successfully completed the Second year of the B.Sc.(H.Ec.) course and has obtained satisfactory standing. The bursary is offered to aid a worthy student who is in need of financial assistance in order to complete her studies. It is payable in two equal instalments at the beginning of the Third and the Fourth years of the course. Other considerations being equal, preference will be given to a candidate from rural Quebec. Application must be made to the Registrar before September 1st, on forms supplied by the College.

MONTREAL HOME ECONOMICS ASSOCIATION BURSARIES.—The Montreal Home Economics Association offers a bursary of $75 to a deserving student on completion of the Third year of the B.Sc.(H.Ec.) course and a bursary of $50 to a student entering the First year of the B.Sc.(H.Ec.) course from any high school in the city of Montreal. Application for these bursaries must be made to the Registrar before September 1st.

DISTRICT OF BEDFORD GRADUATES' SOCIETY SCHOLARSHIP (see page 618)

ST. FRANCIS DISTRICT GRADUATES' SOCIETY BURSARY (see page 619).

GENERAL MOTORS SCHOLARSHIPS (see page 613).

MONTREAL BRANCH, CANADIAN WOMEN'S PRESS CLUB SCHOLARSHIP (see page 626).

PRIZES AND MEDALS

LIEUTENANT-GOVERNOR'S MEDALS.—

(1) *A gold medal,* to be awarded to the student who ranks highest in the Third year of the B.Sc.(H.Ec.) Course.

(2) *A silver medal,* to be awarded to the student who ranks highest in the Second year of the B.Sc.(H.Ec.) Course.

HARRISON PRIZE.—A prize established by an endowment of $300 under the will of the late Dr. F. C. Harrison, Principal of Macdonald College from 1910 until 1926; awarded to the student of the B.Sc.(H.Ec.) course who graduates with the highest standing.

CLASS OF 1953 BOOK PRIZE (see page 674).

HOME ECONOMICS CLUB PRIZE.—The Home Economics Club of Macdonald College offers a prize of $25 to the student with the highest aggregate in Household Science subjects during her Second and Third years. The award will be made at the end of the Third year.

SCHOLARSHIPS AND BURSARIES IN THE SCHOOL FOR TEACHERS

I.O.D.E. BURSARY.—The Municipal Chapter I.O.D.E. offers a bursary of $350, tenable in the School for Teachers, Macdonald College. The award is made by a committee of the Municipal Chapter on the basis of scholarship and need. Applications are to be sent to the Educational Secretary, The Municipal Chapter of Montreal, I.O.D.E., 4112 Western Ave., Westmount, Quebec.

VERDUN WOMEN'S CLUB HARRIET MORRIS MEMORIAL BURSARY.—This bursary of $100 is tenable for one year and is awarded annually by the Verdun Women's Club in memory of the co-founder of the Club, Harriet Morris, to a student who has completed Grade XI in the Verdun High School and who plans to enter the Macdonald College School for Teachers. The award is based on academic record, character, and financial need. Preference is given to women students.

SARAH EMMA HILL SCHOLARSHIP.—The Sarah Emma Hill Scholarship, endowed by the late Mrs. Sarah Emma Hill, of Stanstead, Que., of the present value of about $100, will be awarded each year to a student in the School for Teachers "where assistance is required,—this money to be used by the Trustees of Macdonald College according to their best judgment." Candidates for this scholarship are requested to make written application to the Director of the School for Teachers, on or before September 30th, giving full particulars of the grounds upon which their applications are based, and to provide letters supporting their claims from two responsible persons. In making the award, consideration will be given to scholarship and professional ability.

ELLA BRYSON SCHOLARSHIP.—This scholarship was bequeathed by the late Miss Ella Bryson of Fort Coulonge, Que., to the Women's Institute of Fort Coulonge to provide scholarships at Macdonald College for students from Pontiac County taking a course in the School for Teachers. The funds available each year will be divided equally among the qualified students.

MACDONALD TEACHERS' ALUMNI ASSOCIATION SCHOLARSHIP.—Valued at $75, this scholarship is awarded to the person deemed to be the best all round student. Selection of the winner is made by the Director of the School for

Teachers and the President of the Alumni Association. The scholarship *must* be used to further the winner's educational studies, and will be held in trust for the winner for a period of not more than five years. When circumstances permit, two scholarships will be offered in the same year.

ESTELLA HOLMES SCHOLARSHIP.—The Women's Institute of Stanstead County offers a scholarship of $100 to a boy or girl from Stanstead County who is entering the School for Teachers. Applications should be sent, not later than two weeks after the publication of the High School Leaving examination results to Mrs. R. G. Conner, County Secretary, Stanstead Women's Institute, North Hatley, Que.

OPEN TO ALL WOMEN STUDENTS

JANET MORISON ROBB BURSARY FOR WOMEN.—This bursary was established, by an endowment of $2,000, by the late Honourable James A. Robb, formerly Member of Parliament for Chateauguay-Huntingdon and Minister of Finance, Canada, in memory of his deceased daughter, Janet Morison Robb, wife of Hugh Harvie Donald. The annual bursary will be the income from the endowment for one year. Preference will be given to women students resident in either of the counties of Chateauguay-Huntingdon, or Beauharnois, who are daughters of widowed mothers of limited or moderate means, or daughters of widowers in similar financial circumstances, or daughters of disabled Canadian soldiers who have seen active service.

Candidates for this bursary are requested to make written application, addressed to the Registrar, Macdonald College, Que., *on or before 15th April*, giving full particulars on the grounds upon which their applications are based, and to provide letters from two responsible persons in support of their claims.

CHRISTIE-STORER SCHOLARSHIP (see page 620).

ISABELLA C. MACRAE SCHOLARSHIP (see page 619).

LEONARD FOUNDATION SCHOLARSHIPS (see page 625).

KHAKI UNIVERSITY AND Y.M.C.A. MEMORIAL SCHOLARSHIP FUND (see page 625).

B'NAI B'RITH BURSARIES (see page 623).

FREDERICK SOUTHAM KER BURSARY (see page 623).

PRIZES AND MEDALS

GOVERNOR-GENERAL'S BRONZE MEDAL.—Presented by His Excellency the Governor-General of Canada. Awarded to the teacher-in-training with the highest standing in the Art of Teaching, whether in the Elementary Class, the Kindergarten Class, or the Intermediate Class.

GARDNER KNEELAND MEMORIAL PRIZE IN ENGLISH.—Established by an endowment of $200, by the late Professor A. W. Kneeland, M.A., B.C.L., in memory of his father. Awarded to the teacher-in-training with the highest standing in English.

FRANCES WILLARD WOMEN'S CHRISTIAN TEMPERANCE UNION PRIZE IN PHYSIOLOGY AND HYGIENE.—Presented by The Frances Willard Women's Christian Temperance Union, Westmount, Que. Awarded to the teacher-in-training with the highest standing in Physiology and Hygiene.

A. KIRK CAMERON PRIZE IN PRIMARY METHODS.—Presented by A. Kirk Cameron, a member of the Council of Education. Awarded to the teacher-in-training with the highest standing in Primary Methods.

A. KIRK CAMERON ESSAY PRIZE.—This prize of $100 is offered to the diploma course student submitting the best English essay on one of the following topics (a) The Education of the Teacher (b) The Meaning of Education. The essay is to be written during the session, and full details may be obtained in the Director's office.

DR. S. P. ROBINS MEMORIAL PRIZE.—Established by an endowment of $500, by Miss Lilian B. Robins, B.A., former lecturer in Mathematics, School for Teachers, Macdonald College, in memory of her father, who was first Professor of Mathematics, 1857 and, later, Principal of McGill Normal School, Montreal, until 1907. The income from the endowment for one year will be awarded to the student who obtains a diploma, and is the most deserving student from the point of view of personality, professional attainments, and home circumstances.

R. D. A. TEACHERS' ASSOCIATION PRIZE.—A prize in books offered by the Richmond-Drummond-Arthabaska Protestant Teachers' Association to the teacher-in-training from the R.D.A. area with the highest academic standing.

Note:—*Prizes are awarded only to students who obtain diplomas in the specified class.*

KINDERGARTEN CLASS

CANON SCOTT CHAPTER, I.O.D.E., PRIZE.—Awarded to the teacher-in-training with the highest aggregate in the Kindergarten Class.

INTERMEDIATE CLASS

SUPERINTENDENT OF EDUCATION'S MEDAL.—Awarded to the teacher-in-training with the highest aggregate in the Intermediate Class.

J. C. WILSON PRIZE.—Awarded to the teacher-in-training with the highest aggregate in the Intermediate Class.

DIRECTOR OF PROTESTANT EDUCATION PRIZE.—Awarded to the teacher-in-training with the second highest aggregate in the Intermediate Class.

LIEUTENANT-GOVERNOR'S GOLD MEDAL IN MATHEMATICS.—Presented by His Honour the Lieutenant-Governor of the Province of Quebec. Awarded to the teacher-in-training in the Intermediate Class with the highest standing in Mathematics.

DIRECTOR OF PROTESTANT EDUCATION PRIZE IN FRENCH.—Awarded to the teacher-in-training in the Intermediate Class with the highest standing in French.

LE COMITÉ DE L'ALLIANCE FRANÇAISE DE MONTRÉAL SILVER MEDAL.—Awarded to the teacher-in-training in the Intermediate Class with the highest standing in French.

BISHOP OF MONTREAL PRIZE IN SCRIPTURE.—Awarded to the teacher-in-training in the Intermediate Class with the highest standing in Scripture.

FEDERATION OF PROTESTANT WOMEN TEACHERS OF MONTREAL PRIZE.—Awarded to the teacher-in-training in the Intermediate Class with the highest standing in History and Geography.

MILTON HERSEY PRIZE IN SCIENCE.—Established by an endowment of $250 by Milton L. Hersey, M.A.Sc., LL.D., formerly a member of the Council of Education. Awarded to the teacher-in-training in the Intermediate Class with the highest standing in Science.

ELEMENTARY CLASS

J. C. WILSON PRIZE.—Awarded to the teacher-in-training with the highest aggregate in the Elementary Class.

HONOURABLE JACOB NICOL PRIZE.—Presented by the Honourable Jacob Nicol, Q.C., M.L.C., D.C.L., formerly a member of the Council of Education. Awarded to the teacher-in-training with the second highest aggregate in the Elementary Class.

LIEUTENANT-GOVERNOR'S SILVER MEDAL IN MATHEMATICS.—Presented by His Honour the Lieutenant-Governor of the Province of Quebec. Awarded to the teacher-in-training in the Elementary Class with the highest standing in Mathematics.

LE COMITÉ DE L'ALLIANCE FRANÇAISE DE MONTRÉAL BRONZE MEDAL.—Awarded to the teacher-in-training in the Elementary Class with the highest standing in French.

BISHOP OF MONTREAL PRIZE IN SCRIPTURE.—Awarded to the teacher-in-training in the Elementary Class with the highest standing in Scripture.

MILTON HERSEY PRIZE IN SCIENCE.—Established by an endowment of $250 by Milton L. Hersey, M.A.Sc., LL.D., formerly a member of the Council of Education. Awarded to the teacher-in-training in the Elementary Class with the highest standing in Science.

HOMEMAKER COURSE

GOVERNOR-GENERAL'S BRONZE MEDAL.—Awarded to the Homemaker student who ranks highest in General Proficiency.

MONTREAL LOCAL COUNCIL OF WOMEN PRIZE.—A prize in books to the value of $10 is awarded to the student or students of the Homemaker Course showing outstanding ability in practical subjects.

JANET MORISON ROBB BURSARY FOR WOMEN (see page 678).

IV. GRADUATE FELLOWSHIPS AND SCHOLARSHIPS

For scholarships and bursaries open to students in all Faculties see page 622.

DEMONSTRATORSHIPS AND INSTRUCTORSHIPS.—In several departments graduate students are eligible for demonstratorships and instructorships. Information concerning these may be obtained from the Chairman of the Department concerned.

FELLOWSHIPS AND SCHOLARSHIPS.—The following list of graduate awards is divided into three sections: A, tenable during graduate study at McGill University only; B, tenable either at McGill University or elsewhere; C, a partial list of travelling fellowships and scholarships for which graduates of McGill University may be eligible. In each of these sections the awards are listed in alphabetical order of the undergraduate faculties from which applicants may have proceeded. In Section D are collected the names of awards for which graduates of other universities who wish to pursue advanced studies at McGill may be eligible. It is to be noted that not all awards listed are open for competition each year; further, an award which is open for competition may not be granted if none of the applications is considered meritorious.

Applications for fellowships and scholarships should be made by letter, except in the cases where they are to be directed to the Dean of the Graduate Faculty who will supply application forms; applicants should simultaneously apply for admission to the Faculty, unless this has been previously granted.

A. FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT McGILL UNIVERSITY ONLY

(*See also Section B*)

OPEN TO GRADUATES IN TWO OR MORE FACULTIES

ALLIED CHEMICAL AND DYE CORPORATION FELLOWSHIP IN CELLULOSE CHEMISTRY.—This fellowship of $1,500 and tuition fees for an unmarried man and $2,000 and tuition fees for a married man is tenable by a graduate student in Chemistry, preferably Cellulose Chemistry, normally in the Third year of the Ph.D. course. The Department of Chemistry nominates the recipient.

ALUMINIUM LABORATORIES LIMITED FELLOWSHIP.—This award of $1,600 (eleven months) or $1,100 (eight months) plus fees, plus a grant to the Department for research expenses, is open to graduates of any university who have been admitted to McGill as resident candidates for a Master's or Doctor's degree in Physical Metallurgy and related subjects, and is renewable. Applications should reach the Dean of the Graduate Faculty before May 1st.

AMERICAN VISCOSE CORPORATION FELLOWSHIP IN CELLULOSE CHEMISTRY.—This fellowship of $2,000 per annum may be granted to a graduate of any recognized university who is a British or American subject and is to carry out research on esters or ethers of cellulose in the Division of Industrial and Cellulose Chemistry, located in the Pulp and Paper Research Institute. Applications should be sent to Professor C. B. Purves not later than May 1st.

CANADIAN KODAK COMPANY LTD. FELLOWSHIP.—This award of $1,400 plus fees plus additional benefits is open to male Canadian students about to enter the Third year of the Ph.D. course in Chemistry, Physics, or Chemical Engineering. Application should be made to the Dean of the Graduate Faculty by May 1st.

CELANESE FELLOWSHIP.—The Celanese Corporation of America has offered this Fellowship to a graduate student carrying out thesis research in the Division of Industrial and Cellulose Chemistry on a topic connected with the chemical reactivity of cellulose as influenced by heat and other pre-treatments. The stipend for one year is $1,500 and an additional sum of $700 is provided to defray university fees and the cost of supplies and equipment. Applications should be addressed to the Department of Chemistry.

C-I-L FELLOWSHIPS.—Two postgraduate fellowships in Chemistry, each of the value of $1,700, each with an additional grant of $300 for research expenses, and tenable in the Department of Chemistry (one in the Division of Industrial and Cellulose Chemistry), were established in 1941 by Canadian Industries Limited. These fellowships are known as the C-I-L Fellowships and are open to any British subject who is a graduate of a recognized university. Normally the fellowships will be tenable for one year only, but in special cases they may be renewed for a second year. Application should be made in writing to the Chairman of the Department of Chemistry not later than May 1st.

J. B. COLLIP FELLOWSHIPS IN MEDICAL RESEARCH.—Up to three fellowships of $3,000 each are awarded for study at McGill in Anatomy, Bacteriology, Biochemistry, Histology, Pathology, Pharmacology, or Physiology. Candidates must hold the M.Sc. or Ph.D. in one of these subjects, or a degree in medicine, from a recognized university. Graduates of the McGill medical faculty may be permitted to hold the fellowship at an approved institution elsewhere. Application should be made before February 1st to the Secretary of the Faculty of Medicine, from whom application forms and further particulars may be obtained.

COMINCO FELLOWSHIP.—The Consolidated Mining and Smelting Company of Canada, Limited, offers annually a fellowship of $1,000 for research related to metals, fertilizers, and chemicals; an additional grant up to $500 may be made for research expenses or for continuance of the investigation. The fellowship is open to graduates of any approved university, in Science, Engineering, or Agriculture, who will normally be proceeding towards a higher degree at McGill. Canadian applicants are preferred. The topic of research will be selected in consultation with the donors and with the Dean of the Faculty of Graduate Studies, to whom application should be made not later than May 1st.

COMMUNITY PLANNING FELLOWSHIPS.—Fellowships of $1,000 will probably be available for graduates of any approved university who are seeking a McGill master's degree in Geography, Architecture, Economics, Civil Engineering, Political Science, or Sociology, and who are prepared to participate in the programme of research and study in community planning that is sponsored by these departments. These fellowships are granted by Central Mortgage and Housing, Ottawa, to whom enquiries should be addressed.

GOTTESMAN FELLOWSHIP IN WOOD CHEMISTRY.—The D. S. and R. H. Gottesman Foundation offers annually a fellowship of $800 for research carried out in the Pulp and Paper Research Institute under the supervision of the Department of Chemistry. The candidate must be an American or British subject and a graduate of a recognized university; he will

normally be expected to register at McGill as a candidate for a higher degree. The award is made on the recommendation of the Institute and of the Department of Chemistry. Applications should be sent to Professor C. B. Purves not later than May 1st.

HAROLD HIBBERT MEMORIAL FELLOWSHIP.—This fellowship, the value of which is approximately $3,000, is open to candidates who hold a Ph.D. in Chemistry from an approved university or have equivalent qualifications, and is tenable for one calendar year in the Department of Chemistry at McGill University, where the holder is expected to devote his full time to research. It is not renewable. Letters of application should reach the Dean of the Graduate Faculty by May 1st.

WILLIAM HENRY HOWARD SCHOLARSHIPS (see page 651).

T. STERRY HUNT RESEARCH SCHOLARSHIP IN CHEMISTRY.—This scholarship of the value of $600 is open to graduates in Chemistry and Chemical Engineering who have completed the course for the degree of M.Sc., M.Eng. or Ph.D. and have shown high capacity for research. The holder is to assist in the Department as a demonstrator. No application is required.

INCO FELLOWSHIP.—This fellowship of $500 was established in 1941 by the International Nickel Company of Canada. It is tenable by students working for the master's degree in Inorganic or Physical Chemistry, Chemical Engineering, Mining, Metallurgy, or Geology. Letters of application should reach the Dean of the Graduate Faculty by May 1st.

LEROY MEMORIAL FELLOWSHIP IN GEOLOGY.—This fellowship of $700, established by some friends of Captain O. E. LeRoy (Arts, 1895), who was killed in the battle of Passchendaele, in October, 1917, is awarded annually to a student who desires to proceed with postgraduate studies in Geology at McGill University. The recipient may be called upon to assist in the teaching work of the Department. The award is made by the Chairman of the Department of Geological Sciences in consultation with the Principal.

ALEXANDER MCFEE FELLOWSHIP.—This fellowship of $1,750 is open to graduates of any approved university who are resident full-time candidates for higher degrees or diplomas at McGill. The award will be made in 1957 in Chemistry, in 1958 in Medical Sciences (with preference for Cancer research), in 1959 in Physics and so on in rotation. Applications should reach the Dean of the Graduate Faculty before May 1st.

MCGILL UNIVERSITY CARNEGIE ARCTIC SCHOLARSHIPS.—Candidates must intend to proceed at McGill to a research programme involving field research in Arctic or Subarctic North America; this may be in Biology,

Geology, Geography, Psychology, Sociology, etc. The normal value is $1,500 for the winter session and $1,250 for the expenses of a field expedition the following summer. If renewed for a second session the scholarships are of average value $1,750. Applications should be sent to the Secretary, Carnegie Arctic Program, McGill University, 539 Pine Ave. West, Montreal, before March 15th. Exceptionally, for experienced applicants, the summer's field work may precede the winter session of tenure, in which case applications must be received by February 1st.

MIRON FELLOWSHIP IN CONCRETE STUDIES.—This fellowship has been established by Miron & Freres Limited for advanced studies in some phase of the concrete industry in the Department of Civil Engineering. This fellowship has an annual value of $900 plus an additional $300 to the University to be used in the best interests of the investigation. Applicants must be Canadian citizens, normally resident in Canada or those who have taken steps to become Canadian citizens and graduates in science or engineering of a recognized university. Applications should be made to the Dean of the Graduate Faculty.

PROVINCE OF QUEBEC SCIENTIFIC RESEARCH BUREAU FELLOWSHIPS.—The Bureau grants fellowships, normally of $750 annually, to graduate students who have bona-fide domicile in the Province and are pursuing researches, in any branch of science, which may lead to contributions to the welfare of the Province and the development of its industries. For further particulars consult the Dean of the Faculty of Graduate Studies and Research, before May 1st.

SPRUCE FALLS POWER AND PAPER COMPANY LIMITED FELLOWSHIP IN PULP AND PAPER RESEARCH.—This Fellowship of $1,400 plus fees, plus $300 for research expenses, sponsored by the Spruce Falls Power and Paper Corporation, Limited, is open to Canadians, or landed immigrants from Commonwealth countries, who are graduates of any approved University and who wish to proceed to a higher degree in any branch of chemistry or engineering or physical science, provided that the proposed research topic is agreed to be relevant by the Pulp and Paper Research Institute. Application should reach the Dean of the Graduate Faculty before May 1st.

SHELL OIL FELLOWSHIP.—This fellowship of $1,200 is offered to a graduate of any approved university proceeding towards a Master's degree or Ph.D. at McGill in one of the following fields: Chemistry, Chemical Engineering, Mechanical Engineering, Geology, Physics, Geophysics. Application should be made to the Dean of the Graduate Faculty not later than May 1st.

SOLVAY FELLOWSHIP.—This fellowship of the annual value of $1,150 is offered for the first year of study in the Faculty of Graduate Studies and

Research. The award is tenable in any Department of the Faculty, and is open to men and women equally. The holder must have graduated in an undergraduate Faculty of McGill University in the session prior to that for which the award is given, and must obtain permission to proceed to graduate study. No teaching duties are required of the holder, who may not hold any other fellowship or bursary, nor receive a salary for teaching or other duties, during his tenure. Applications for this fellowship must be made to the office of the Dean of the Graduate Faculty on or before May 1st in each year.

UNIVERSITY BURSARIES (see page 609).

VISKING LIMITED FELLOWSHIP.—This fellowship of $2,250 including tuition fees and research expenses may be awarded to a Ph.D. candidate in Chemistry who will be, and has been for at least one year, identified in his research and training programme with the work of the Pulp and Paper Research Institute. The award is made by the Institute. No application is required.

HARRISON WATSON SCHOLARSHIP.—Established in August 1953 by a bequest from the late Harrison Watson and Ruth Appleton Watson in memory of their only son, Captain Aubrey Wentworth Harrison Watson, D.S.O., M.C. This scholarship of not less than $1,500 is open to men and women graduates of an approved Faculty of Medicine or the holders of M.Sc. or Ph.D. degrees or approved candidates for Ph.D. degrees at McGill University who have completed one year of research and study toward their degrees. The scholarship is open to candidates who have spent at least one year in postgraduate training. Awards of higher value may be made to candidates with higher qualifications. The scholarship may be renewed for two additional years. Preference will be given to McGill graduates. The purpose of the scholarship is the encouragement of research into the causes and cure of tuberculosis and other diseases of an allied character. The scholarship is tenable only at McGill unless the scholar is a graduate in Medicine of McGill University in which case the work of the scholarship may be undertaken at McGill or at an approved institution elsewhere. The successful candidate is required to devote his full time for at least ten consecutive months to the object of the award. Application forms may be obtained from the Secretary of the Faculty of Medicine and must be submitted not later than February 1st.

OPEN TO GRADUATES IN AGRICULTURE ONLY

WALTER M. STEWART SCHOLARSHIPS IN AGRICULTURE.—Two scholarships of $1,000 each are offered to postgraduate students at Macdonald College. One may be held by a postgraduate student whose undergraduate work was taken at the Institut Agricole d'Oka, one by a student from the

Collège de Sainte Anne de la Pocatière. Application for these scholarships must be made to the Directors of the two colleges concerned.

C-I-L FELLOWSHIP IN AGRICULTURE.—Canadian Industries Limited offer a fellowship of $1,200 at the M.Sc. level, $1,700 at the Ph.D. level to a student engaged in graduate work at Macdonald College. The fellowship is open to any British subject who is a graduate of a recognized university, and the chosen candidate may be registered in any department provided his research is related to chemistry in agriculture. At the close of the academic year a full written report of all work performed under the fellowship shall be submitted to Canadian Industries Limited. Applications, addressed to the Registrar of Macdonald College, must be made before May 15th.

COMINCO FELLOWSHIP (see page 683).

OPEN TO GRADUATES IN ARTS AND SCIENCE ONLY

BRONFMAN FELLOWSHIPS IN COMMERCE AND ECONOMICS.—The Graduate Faculty offers two fellowships of $1,200 each to men and women who have graduated in Commerce or in Economics from accredited universities. The holder of the fellowship is entitled to apply again in a subsequent year. Holders will be expected to be in residence at McGill University throughout the academic session, and to be candidates for a higher degree at McGill. A small amount of teaching work may be asked. Special application forms can be obtained from the Dean of the Graduate Faculty, and should be returned to the Dean of the Graduate Faculty on or before May 1st. Preference will be given to applicants who have previous research experience.

PHILLIP CARPENTER FELLOWSHIP IN ZOOLOGY.—This award of $800 was established in 1892 by Mrs. Philip P. Carpenter to provide "a post-graduate teaching fellowship or scholarship in Natural Science or some branch thereof in the Faculty of Arts of McGill College." Application may be made to Professor John Stanley before May 1st.

MARY KEENAN SCHOLARSHIP IN ENGLISH.—This scholarship of $200 is awarded by the Department of English to a student who is proceeding at McGill University from the B.A. to the M.A. in English. The need of the student as well as his ability will be taken into consideration.

SAMUEL LAPITSKY SCHOLARSHIP.—This scholarship of $600 is tenable by a graduate of any accredited university. Tenure is conditional upon acceptance of the student by the Faculty of Graduate Studies and Research in the field of Sociology or Anthropology. The scholarship is tenable in any year of graduate study and may be renewed for a second

year. A small amount of teaching work may be required. Application to the Dean of the Graduate Faculty should be made not later than May 1st.

ALEXANDER MACKENZIE FELLOWSHIP IN POLITICAL SCIENCE.—This fellowship of the annual value of $950 is tenable by a graduate of any accredited university. Such tenure is conditional upon the acceptance by the Department of Economics and Political Science of the applicant as being entitled to admission to the Faculty of Graduate Studies and Research in the field of Political Science. A certain amount of tutorial and teaching work will be required of the holder of the fellowship. Under certain conditions, which may be ascertained in consultation with the Department of Economics and Political Science, this fellowship may be held for a second or third year. Each candidate should send (i) a letter of application, (ii) a certified copy of his academic record, (iii) not more than three testimonials. These should reach the Dean of the Graduate Faculty before the 1st of May.

ARTHUR C. TAGGE FELLOWSHIP IN THE HUMANITIES AND SOCIAL SCIENCES.—This fellowship of the annual value of $1,200 is tenable by a graduate of any approved university proceeding to a higher degree in any Department of the Humanities or the Social Sciences. It will normally be awarded for the first year of graduate study and not be renewable, but exceptions to these rules are not excluded. Applications are invited from outstanding students in the last year of the undergraduate course, at McGill or elsewhere, and should reach the Dean of the Graduate Faculty not later than May 1st.

UNION CARBIDE RESEARCH FELLOWSHIPS.—Four fellowships of $1,500 each in the Natural and Social Sciences have been established by Union Carbide (Canada) Limited and are open to graduates of Canadian universities who are candidates for the Ph.D. degree. Application should be made to the Dean of the Graduate Faculty by May 1st.

UNIVERSITY FELLOWSHIPS.—The Board of Governors in 1948 set aside $4,000 annually to establish fellowships in the Humanities and Social Sciences, tenable at McGill by graduates of any approved University who have been admitted to candidacy for a higher degree in these fields including the M.A., M.C.L., LL.M., S.T.M., or Ph.D. The value of each is $800, or $400 for those who can live at home in Montreal. Application should be made to the Dean of the Graduate Faculty prior to May 1st.

OPEN TO GRADUATES IN DIVINITY ONLY

W. M. BIRKS FELLOWSHIP IN DIVINITY (see page 671).

SAMUEL FINLEY MEMORIAL SCHOLARSHIP (see page 671).

OPEN TO GRADUATES IN ENGINEERING ONLY

SIR WILLIAM DAWSON FELLOWSHIP IN METALLURGY.—A research and teaching fellowship of $1,100 annually, in the Department of Metallurgical Engineering, endowed in memory of the late Sir William Dawson, Principal of McGill University from 1855 to 1893. If, in any particular year, the Department of Metallurgy has no candidate for this fellowship and for that same year the Department of Mining has a suitable candidate for whom no fellowship is available the Sir William Dawson Fellowship shall become available to the Department of Mining.

JAMES DOUGLAS FELLOWSHIP IN MINING.—A research and teaching fellowship of $800 annually, in the Department of Mining Engineering, endowed by the late Dr. James Douglas, is restricted to McGill graduates.

B. J. HARRINGTON BURSARY IN MINING ENGINEERING.—This bursary of approximately $300 a year, supported by graduates in Mining Engineering in memory of the late Professor B. J. Harrington, is awarded annually if a suitable candidate offers, and is restricted to McGill graduates.

JOHN BONSALL PORTER SCHOLARSHIP.—This scholarship of $200 founded by Dr. W. W. Colpitts (B.Sc., 1899), is open to graduate students proceeding to the degree of M.Eng. in Civil, Mechanical, or Electrical Engineering, preference being given to students in Civil Engineering. Applications should be in the hands of the Dean of the Faculty of Engineering not later than July 30th. In the case of graduates of other universities these must be accompanied by certified statements of academic standing and letters of recommendation.

WADDELL LOAN FUND.—Loans from this fund, which was founded by J. B. Waddell, Esq., may be made to graduate as well as undergraduate students in any Department of Engineering. Application should be made to the Dean of the Faculty of Engineering.

OPEN TO GRADUATES IN MEDICINE ONLY

A. A. BROWNE MEMORIAL FUND.—The sum of $10,000 has been received by the Faculty of Medicine from the committee of the A. A. Browne Memorial Fund. This fund is used either for a fellowship to be known as the "A. A. Browne Memorial Fellowship", or for a grant to a department to provide technical assistance, equipment, and supplies for medical research. The fellowship is open to graduates of any recognized medical school and is for the advancement of medical science, special preference being given to the subjects of Obstetrics and Gynaecology. For further information apply to the Secretary of the Faculty of Medicine.

JAMES COOPER ENDOWMENT FOR THE STUDY AND TEACHING OF INTERNAL MEDICINE.—This fund was established by a bequest from the late James Cooper. The income will be used for fellowships or for grants to departments to provide technical assistance, equipment, and supplies for medical research.

JAMES DOUGLAS FELLOWSHIP IN PATHOLOGY.—The sum of $25,000 was donated by the late Dr. James Douglas, the proceeds to be devoted to co-ordinated research in the laboratories of pathology in or associated with the University.

BLANCHE HUTCHINSON RESEARCH FUND.—This fund was established by a bequest from the late Mrs. Frank L. Hutchinson. The income will be used for fellowships or for grants to departments to provide technical assistance, equipment, and supplies for medical research.

H. W. MOLSON FELLOWSHIP IN CANCER RESEARCH.—This fellowship has an annual value of not less than $1,000, is renewable for not more than four years, and is open to graduates of any recognized medical school. The course of training and research will be decided by the Strathcona Professor of Pathology and the Professor of Obstetrics and Gynaecology, and will ordinarily comprise one or more years of study in the Pathological Institute followed by clinical research in the Royal Victoria Hospital. Applications should be made to the Dean of the Faculty of Medicine.

FELLOWSHIPS IN NEUROLOGY, NEUROPATHOLOGY, AND NEUROSURGERY.—A limited number of fellowships may be available in the Montreal Neurological Institute, to which inquiries should be directed.

SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS (see page 664).

GORDON PHILLIPS FUND FOR RESEARCH IN CARDIOVASCULAR DISEASES.—This fund provides a scholarship, having a value of not less than $1,600, and is open to graduates in Medicine of any approved medical school. Candidates will be considered on equal terms regardless of sex, race or religion. Scholarships awarded to graduates of the Faculty of Medicine of McGill University may be held at McGill or at any approved institution in Canada or abroad. An award made to one who is not a graduate in Medicine of McGill University must be held at McGill University. Application for this scholarship must be made to the Secretary of the Faculty of Medicine prior to February 1st.

JEANNETTE VICTOR MEMORIAL SCHOLARSHIP.—This scholarship, of the value of $300, is open to graduates of any approved medical school and who are principally engaged in research upon the physiology of the heart, or its diseases; tenure of this award does not disqualify the scholar

from holding another award or position. Application should be made to the Secretary of the Faculty of Medicine, prior to May 1st.

JOSEPH SCHUBERT MEMORIAL SCHOLARSHIP.—The terms of this award of $300 are similar to those of the Jeannette Victor Memorial Scholarship.

B. FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT McGILL UNIVERSITY OR ELSEWHERE

OPEN TO GRADUATES IN TWO OR MORE FACULTIES

RUSSELL J. EDDY FOUNDATION SCHOLARSHIP.—This award, of $1,000 for the session, is tenable by a graduate of a Canadian university pursuing graduate work in Chemistry or Chemical Engineering at any approved institution; applications should be submitted to the Chemical Institute of Canada, 18 Rideau Street, Ottawa, before March 1st.

IMPERIAL OIL GRADUATE RESEARCH FELLOWSHIPS.—Five fellowships of $1,250, renewable up to three years, are offered annually by Imperial Oil Limited to graduates of approved Canadian universities for research leading towards a Doctor's degree at any approved university in the following fields:

Chemistry, Physics and/or Engineering	Two fellowships
Geology	One fellowship
Economics, Psychology, Sociology or Business Administration	One fellowship
Humanities such as English, Ancient and Modern Languages, History, Philosophy	One fellowship

Applications are forwarded by the University at which the undergraduate course was followed, and inquiries should be made at the Registrar's Office not later than February 1st or to the Secretary, Imperial Oil Scholarships Committee, 56 Church Street, Toronto 1. Completed applications must be submitted before March 1st.

McGILL DELTA UPSILON MEMORIAL SCHOLARSHIP.—Founded by the McGill Chapter of the Delta Upsilon Fraternity in memory of the members of that Chapter who gave their lives in the Boer War, the Great War of 1914-18, and the Second World War of 1939-45. This scholarship is open to graduates of the University in all faculties. The Selection Committee will consider: (a) the general scholarship of the candidate; (b) his need of financial assistance for further study; (c) the general usefulness to the community of the special branch of study he proposes to follow; (d) the likelihood that the candidate will reflect credit on the University. The present value of the scholarship is about $1,500. Application should be made in writing to the Registrar before April 1st.

NATIONAL CANCER INSTITUTE RESEARCH FELLOWSHIPS.—Fellowships of variable value, normally tenable in Canada, are offered in the field of cancer research to men or women graduates of approved universities. Application must be made on official forms to the National Cancer Institute of Canada, 800 Bay Street, Toronto 5, by December 15th.

NATIONAL RESEARCH COUNCIL SCHOLARSHIPS.—Bursaries and studentships of the value of $800 and $1,200 respectively, are awarded each year by the National Research Council to highly qualified graduates for study and research in Canada in Biology, Chemistry, Physics, Geology, Mathematics, Engineering, and Applied Psychology. They are open on equal terms to men and women whose age should not exceed 30. Further particulars and application forms may be obtained from the Registrar's Office and applications should be made before February 1st. There are also "Summer Supplemental Scholarships" of $800. A limited number of Post-doctorate Overseas Research Fellowships are also available.

INTERNATIONAL NICKEL OF CANADA FELLOWSHIPS.—These awards of $1,500 (plus $500 for research expenses) are renewable up to three years, and are open in the fields of Metallurgy, Mining, Geology, and the Chemistry and Physics of Metals. Application is made before February 28th to a committee of the National Conference of Canadian Universities, and originates from the Professor under whom the research will be carried out, rather than from the student.

ONTARIO RESEARCH FOUNDATION SCHOLARSHIPS AND FELLOWSHIPS.—The Ontario Research Foundation (43 Queen's Park, Toronto 5) offers annually a number of postgraduate scholarships and fellowships in science and engineering. These awards are tenable at any university in Ontario by students from any recognized university and tenable by Ontario students at universities elsewhere. The purpose of these awards is to enable students to undertake graduate studies leading to advanced degrees in the natural and physical sciences, pure and applied, such as Biology, Chemistry, Engineering, Forestry, Geography, Geology, Mathematics, Metallurgy, Mineralogy, and Physics. Scholarships of $800 may be awarded to applicants for their first year of postgraduate research and may be renewed for a second year at $1,100. Fellowships of $1,400 will only be awarded to students in the final year of study for the doctor's degree. Application must be made, on forms obtainable at the Graduate Faculty Office, before February 1st.

PROVINCE OF QUEBEC MINING BURSARIES (see page 654).

OPEN TO GRADUATES IN AGRICULTURE

MACDONALD COLLEGE ALUMINI ASSOCIATION GRADUATE SCHOLARSHIPS.—In memory of graduates and undergraduates of the Faculty of Agriculture

who died in service during the War of 1914-1918; created, in connection with the Centennial Campaign, 1920, through subscriptions of graduates, undergraduates, members of the staff and other friends; one scholarship of $200 and one scholarship or bursary of $150 are offered to graduates of Macdonald College who wish to undertake graduate work, either at Macdonald College or at any other recognized institution. The scholarship is restricted to graduates in Agriculture; the scholarship or bursary is open to graduates in Agriculture or in Household Science. Both are tenable for one year but may be renewed in special circumstances. The holder is chosen by a committee appointed by the executive of the Macdonald College Alumni Association, and applications should be addressed to the Registrar, Macdonald College, before September 1st.

OPEN TO GRADUATES IN ARTS AND SCIENCE ONLY

GUY DRUMMOND SCHOLARSHIP IN POLITICAL SCIENCE AND ECONOMICS.—This scholarship, open to men only, originally endowed by the late Guy M. Drummond, is awarded annually by the University Scholarships Committee to a graduating student in the Faculty of Arts and Science nominated jointly by the Department of Economics and Political Science and the Department of Romance Languages. In making the nomination the two Departments will take into account the student's academic record and the likelihood that he will make a contribution of value to Canadian life. The student nominated must be taking the honours course in Political Science. Selection of the scholar is made on the initiative of the University Scholarships Committee. It is not applied for by the candidate. The value of the Scholarship is $2,600. $2,000 of this covers a year of study in Paris and the remaining $600 a further year at McGill University studying for the M.A. degree. In Paris, the holder will study at the Institut d'Etudes Politiques unless he wishes to specialize in Economics rather than Political Science and has been granted permission by McGill University to study at the Sorbonne or at the Institut d'Economie Appliquée.

ALLEN OLIVER FELLOWSHIP IN ECONOMICS.—This fellowship has been established by Mrs. Frank Oliver, of Edmonton, Alta., in "proud and loving memory of her son, the late Allen Oliver, M.C., B.A., Lieutenant, 26th Battery, C.F.A., who was killed in action at the Somme on November 18th, 1916." Lieutenant Oliver was an honour graduate in 1915 in the Department of Economics and Political Science. The fellowship is awarded annually to the student who stands highest in first class honours in the Department of Economics and Political Science at the final B.A. examination, and the holder is required to pursue his studies in Economics and Political Science at McGill University or elsewhere. The present value of the scholarship is about $750. No application is required.

WOODROW WILSON FELLOWSHIPS.—These Fellowships, tenable in the First year of graduate work in the Humanities and Social Sciences, at any approved university, are awarded upon invitation only upon nomination by members of the academic profession and cannot be applied for.

OPEN TO GRADUATES IN LAW ONLY

EDWIN BOTSFORD BUSTEED SCHOLARSHIP.—Founded by the will of the late Mrs. Edwin Botsford Busteed and awarded to an applicant, chosen by the Faculty, who desires to carry out graduate research on some subject connected with the law of Quebec and approved by the Faculty.

OPEN TO GRADUATES IN MEDICINE ONLY

SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS FOR MEDICAL STUDENTS (see page 664).

G. RUTHERFURD CAVERHILL FELLOWSHIP IN MEDICINE.—A fellowship of variable value to assist demobilized medical officers to obtain post-graduate training in medicine or research experience. Preference will be given to graduates of McGill University. Enquiries should be made of the Dean of the Faculty of Medicine.

JOHN MCCRAE FELLOWSHIP.—This fellowship of $1,000 may be awarded to candidates of the following types: (1) Graduates of any approved medical school who are candidates for the Diploma in Surgery, Urology, Otolaryngology, Radiology, etc., or (2) McGill graduates in Medicine, or (3) graduates of any approved medical school proceeding towards a McGill M.Sc. or Ph.D. in fields related to Surgery, etc., it being understood in all cases that the holder is expected to spend twelve months in full-time laboratory or clinical research at McGill or an approved institution elsewhere. Applications should be made to the Dean of the Faculty of Medicine not later than May 1st, and should be accompanied by a letter of recommendation from a member of the teaching staff, a transcript of the undergraduate record, and a description of the proposed research indicating the institution selected and the person responsible for its direction. The period of tenure should commence not earlier than June nor later than October; a final report on the work done is required. In all cases preference will be given to candidates aiming at a course in Surgery, and to researches likely to contribute to Surgery and its branches.

NATIONAL RESEARCH COUNCIL MEDICAL FELLOWSHIPS.—These are designed to provide training and research in one of the medical sciences (not for clinical training), and have values of $1,500, $1,800, or from $1,800 to $3,000 for those with previous research experience. Applications should be submitted to the National Research Council before February 15th.

OSLER MEMORIAL SCHOLARSHIP.—This scholarship is normally awarded by the Canadian Medical Association every third year to a candidate nominated by the Faculty of Medicine "in order that such candidate may pursue studies to advance the knowledge of medicine and to improve the teaching of clinical medicine." Candidates must be graduates of not more than ten years' standing and, other things being equal, preference will be given to a graduate of McGill University.

GORDON PHILLIPS FUND (see page 690).

J. FRANCIS WILLIAMS SCHOLARSHIP IN MEDICINE AND CLINICAL MEDICINE.—This scholarship of the annual value of $500, founded by the late J. Francis Williams, M.D., to be awarded on the result of a special examination open to students of the final year who have had a high general scholastic standing and who are approved by the Chairman of the Department of Medicine.

C. FELLOWSHIPS AND SCHOLARSHIPS TENABLE AT OTHER UNIVERSITIES ONLY

(See also Section B)

OPEN TO GRADUATES IN SEVERAL FACULTIES

COLONIAL RESEARCH GRANTS.—The Colonial Social Science Research Council, Room S. 612, Colonial Office, Sanctuary Buildings, Great Smith St., London, S.W. 1, will, about June 15th, make grants of £500-£800 per annum to selected Honours graduates in the social sciences, including history and law; the tenure is normally 2½ years of which two years will be spent in study and research in one of the British Colonial territories.

SCIENCE SCHOLARSHIPS GRANTED BY HER MAJESTY'S COMMISSIONERS FOR THE EXHIBITION OF 1851.—These scholarships, of £550 sterling a year, with an additional grant of £25-£100 a year to cover University fees, etc., are tenable for two or, exceptionally, three years. They are to enable students to devote themselves to research work under conditions most likely to equip them for practical service in the scientific life of the Commonwealth. The holder is required to devote himself to research, the particular nature of which must be approved by the Commissioners. Three of these scholarships, which are tenable at any institution approved by the Commission, are allotted to Canada each year, the scholars being chosen by the Commission from the nominees of certain universities, among which McGill is included. Candidates will in most cases have completed from one to three years of postgraduate study; the scholarships are usually held at universities in the United Kingdom. Candidates should apply, not later than January 15th, through the Chairman of their Department. Details concerning the regulations may be obtained from the Registrar's Office.

RUTHERFORD SCHOLARSHIP.—This scholarship is awarded for experimental research in any branch of the natural sciences, preference being given to experimental physics. The scholarship will be tenable for three years in some part of the British Commonwealth other than that in which the applicant graduated. It will not normally be awarded to a graduate who has already held a senior research award. The value of the scholarship will be adjusted to meet the circumstances of the appointment but if held in the United Kingdom it will be between £600 and £800 per annum. Additional allowances will be granted for travel, university fees, etc. Application from university graduates outside the United Kingdom should be made through their universities on forms of application for the 1851 Exhibition Science Research Scholarship not later than January 15th. Further details may be obtained from the Registrar's Office. The award will be made by the Royal Society.

EXCHANGE FELLOWSHIP WITH THE UNIVERSITY OF GLASGOW.—An exchange fellowship has been established whereby a McGill graduate may spend a session of postgraduate work in the University of Glasgow. McGill University provides $400 towards the cost of transportation; Glasgow provides tuition, room, and board from October 1st to June 30th with an additional allowance of £50. Recommended fields of study are Chemistry, Physics, Zoology, Marine Biology, Botany, Geology, Economics, and the Medical Sciences. Application should be made to the Dean of the Graduate Faculty by May 1st; preference will be given to applicants who are Canadian and who have studied at McGill for several years.

POSTGRADUATE SCHOLARSHIPS GRANTED BY THE IMPERIAL ORDER DAUGHTERS OF THE EMPIRE.—Nine scholarships, in memory of the men and women who gave their lives in defence of the Empire in World War I, are offered annually—one for each province. They are of the value of $2,000 and have been founded "to enable students to carry on studies at any university in the United Kingdom, in British and Imperial History, the Economics and Government of the Empire and Dominion, or any subject vital to the interests of the Empire."

Four additional postgraduate scholarships of $2,000 each have been established by the Imperial Order Daughters of the Empire in memory of the men and women who gave their lives in defence of the Empire in World War II. These scholarships are offered annually to enable students to carry on postgraduate work in History, Philosophy, English, or French Literature and are tenable at any University in the British Empire. They may be awarded for a second year to the same candidate.

Full details may be obtained from the Registrar's Office or from the Provincial Educational Secretary of the Order in any Canadian Province. In Quebec the address is 4112 Western Ave., Westmount, Quebec. Applications must be submitted by October 15th.

NUFFIELD FOUNDATION FELLOWSHIPS.—These awards are made in the Natural Sciences and in the Humanities and Social Sciences, and are open to Canadians 25 to 35 years old who have at least a year's teaching or research experience beyond the level of the Ph.D. degree. They are tenable in the United Kingdom, their value being £770-£890 plus a travel grant. Application forms may be obtained from Mr. G. V. Ferguson, 245 St. James St. West, Montreal, and should be submitted by January 15th at latest.

PROVINCE OF QUEBEC POSTGRADUATE SCHOLARSHIPS.—A number of scholarships are granted annually by the Government of the Province to graduates who wish to complete their studies outside Canada. These scholarships are each of the value of $1,200 per annum. They are awarded in the first instance for one year, but their tenure may be extended to three years if the work of the holder is satisfactory. Candidates must be bona-fide residents of the Province of Quebec and preference is given to those who intend to carry on teaching or research work in Canadian universities or schools on their return to Canada. Each letter of application should state the candidate's age at next birthday, his subject of study, and the institution he plans to attend, and should be accompanied by two testimonials from members of his faculty and two additional references from responsible citizens. The awards are generally announced by the Provincial Government at the end of July each year. Applications should be addressed to the Registrar and submitted not later than the 1st of April.

RHODES SCHOLARSHIPS.—These scholarships of £600 a year are tenable for two years at the University of Oxford. A third year may be granted under certain conditions. Candidates must be British subjects with at least five years domicile in Canada and be between the ages of nineteen and twenty-five. Two scholars are chosen annually from the Province of Quebec, and men students in any faculty may apply. Applications must be in the hands of the Secretary of the Provincial Selection Committee not later than November 10th. Further details of tenure, eligibility, and qualifications, and application forms may be obtained from the Registrar's Office, or the Provincial Secretary, Mr. Paul Gerin-Lajoie, Versailles Building, 60 St. James St. West, Montreal.

ROYAL SOCIETY OF CANADA FELLOWSHIPS.—Research Fellowships of the maximum value of $2,500 each are awarded annually by the Royal Society of Canada to Canadians who have done advanced work in any branch of Science or Literature. They are normally tenable outside Canada only. These awards are open to men and women on equal terms, whose age should not exceed 32, and candidates except in very special cases should have obtained the degree of Doctor of Philosophy or its equivalent. Pre-doctoral scholarships of $1,500 each in the Humanities are also available. Copies of regulations and application forms may be obtained

from the Secretary, Fellowships Board, Royal Society of Canada, National Research Building, Ottawa. Applications must be submitted before January 1st.

The Royal Society also administers the Canadian Government Overseas Awards in the Arts, Letters, and Sciences. These consist of Fellowships of $4,000 for senior scholars and Scholarships of $2,000 for students with the M.A. degree or equivalent and are tenable in France, The Netherlands, Great Britain, and Italy. Return ocean fare is paid in addition to the amount of the award. Application forms may be obtained from the Royal Society and must be submitted before April 1st.

SHELL POSTGRADUATE SCHOLARSHIPS.—Two scholarships of $750 per annum are offered for study at a university in the United Kingdom in Chemistry, Physics, Geology or Engineering, leading to a higher degree. The holder should be a male British (or Commonwealth) subject and have completed at least one year of postgraduate study. The closing date for applications is January 31st; further information may be obtained from the office of the Dean of the Graduate Faculty.

SWISS EXCHANGE SCHOLARSHIPS.—Two postgraduate exchange scholarships are offered annually tenable at the following Swiss universities:

University of Basel
University of Berne
University of Geneva
University of Zurich
Institute of Economic and Political Sciences, St. Gall
Federal Institute of Technology, Zurich.

These scholarships cover the cost of tuition fees only. Candidates must be prepared to pay all travelling costs and all incidental expenses such as books, living expenses, cost of vacation periods, etc. Candidates must be recommended by McGill University and have a good scholastic record, a satisfactory knowledge of French or German, and good health. The scholarships are open to both men and women of any faculty. Applications should be made to the Registrar by April 1st.

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S PROFESSIONAL FELLOWSHIP.—This fellowship of $1,000 is open to any woman holding a degree from a Canadian University who is not more than 35 years of age at the time of award and whose domicile is in Canada. The proposed place and plan of study must be approved by the Fellowship Committee. The award will be based on evidence of character, intellectual achievement, and promise. Preference will be given to candidates who have completed one or more years of professional work and who desire to spend a year at an accredited Library School, College of Education, or similar

professional school. Full information can be obtained from the Convener of the Fellowship Committee, Mrs. W. D. H. Buchanan, Apt. 2, 5255 Cote St. Luc Road, Montreal, Quebec. Applications and testimonials must be received before February 1st.

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S TRAVELLING FELLOWSHIP.—This fellowship of $1,500 is open to any woman holding a degree from a Canadian University who is not more than 35 years of age at the time of award and whose domicile is in Canada, although she may be studying elsewhere at the date of application. The award is based on evidence of character, intellectual achievement, and promise. Preference will be given to candidates who have completed one or more years of graduate study and who have a definite course of study or research in view. The general policy will be to grant the fellowship alternately to students engaged in scientific research and to those engaged in research in the humanities. Full information can be obtained from the Convener of the Fellowship Committee, Mrs. W. D. H. Buchanan, Apt. 2, 5255 Cote St. Luc Road, Montreal, Quebec. Applications and testimonials must be received before February 1st.

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S JUNIOR FELLOWSHIP.—This fellowship of the value of $1,200 is open to any woman graduate of a Canadian university who is not more than 25 years of age at the time of award and whose domicile is in Canada, although she may be studying elsewhere at the date of application. The award will be based on evidence of character, intellectual achievement, and promise. The proposed place and plan of study must be approved by the Committee. Preference will be given to students who have studied in only one university and who desire to continue their studies in another. Full information can be obtained from the Convener of the Fellowship Committee, Mrs. W. D. H. Buchanan, Apt. 2, 5255 Cote St. Luc Road, Montreal, Quebec. Applications and testimonials must be received before February 1st.

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S MARGARET MCWILLIAMS FELLOWSHIP.—This fellowship of $1,500 was awarded for the first time in 1953. In 1958 and alternate years it will be open to any non-Canadian woman holding a degree recognized by the International Federation of University Women who wishes to carry out postgraduate study or research in a Canadian university. The proposed place and plan of study must be approved by the Canadian Federation Fellowship Committee. The award will be based on evidence of character, achievement, and promise. Preference will be given to candidates who have started their graduate study and who have a definite course of study or research in view. Full information can be obtained from the Convener of the Fellowship Committee, Mrs. W. D. H. Buchanan, Apt. 2, 5255 Cote St. Luc Road, Montreal, Quebec. Applications and testimonials must be received before February 1st.

OPEN TO GRADUATES IN ARCHITECTURE

A. F. DUNLOP SCHOLARSHIP.—This scholarship of $1,500 was established in 1951 by the will of the late Mrs. Catherine A. Dunlop as a travelling scholarship for students graduating in Architecture.

HUGH MCLENNAN MEMORIAL SCHOLARSHIP.—Established by the Hon. John Stewart McLennan and Dr. Francis and Miss Isabella McLennan in memory of Hugh McLennan, son of the Hon. John Stewart McLennan, killed at the Battle of Ypres in 1915. The amount of this scholarship is $1,000. It will be awarded to the student graduating in Architecture who during his course has shown the greatest capacity in the solution of problems and who gives promise of creative ability.

OPEN TO GRADUATES IN ARTS AND SCIENCE

MOYSE TRAVELLING SCHOLARSHIPS.—The Moyse Travelling Scholarships were founded by the late Right Honourable Lord Atholstan, to commemorate the "splendid services of Dr. Charles E. Moyse, for forty-two years Professor of English, during sixteen of which he was Dean of the Faculty of Arts and Vice-Principal of the University." Two scholarships, each tenable for one year, are awarded by the Faculty of Arts and Science, one for distinction in literary subjects, and the other for distinction in scientific subjects. If a deserving applicant in one of these divisions is not forthcoming, both scholarships may be awarded to applicants who belong to the other. The holder must devote the period of the tenure of the scholarship to advanced study, preferably in a British or European university, but not to the exclusion of other universities. The scholarships are normally of the value of $1,500 each. Applications should be made to the Dean of the Faculty of Arts and Science not later than April 1st. Applications should be accompanied by:

(1) an official transcript of the applicant's academic record to date.

(2) the names of two referees who are familiar with the applicant's work.

(3) a statement, as precise and particular as possible, of the course of study which the applicant proposes to pursue if awarded the scholarship; the institution or centre at which he, or she, proposes to study; and the purpose to which the study is to be directed.

(4) a statement of the applicant's age and nationality.

MACKENZIE KING TRAVELLING SCHOLARSHIPS.—From six to eight scholarships of $1,500 each are offered annually to graduates of any Canadian university who propose to engage, either in the United States or the United Kingdom, in postgraduate studies in the fields of International or Industrial Relations. Applicants should be persons of unusual worth and

promise. Awards will be determined on the basis of academic achievement, personal qualities and demonstrated aptitudes. Consideration will also be given to the applicants' proposed programmes of study. Applications must be submitted by April 15th. Further information may be obtained from the Registrar's Office.

OPEN TO GRADUATES IN ENGINEERING

ATHLONE FELLOWSHIPS.—These fellowships are awarded annually by Her Majesty's Government in the United Kingdom to enable Canadian engineering graduates to take postgraduate training in the United Kingdom. The fellowships fall into two groups: Group A, available for graduates on completion of a bachelor's or higher degree; Group B, for engineers who have already spent some time in industry. The fellowships provide for a period of two years in the United Kingdom and are awarded on the understanding that their holders afterwards return to Canada to follow their careers. They are available for any among the following options but preference is given for courses involving works experience: (1) Works training in one or more approved industrial organizations. (2) Postgraduate studies in a United Kingdom university or college or research establishment. (3) A combination of (1) and (2). (4) Research in a United Kingdom University leading to the degrees of M.Sc. or Ph.D. Each fellowship covers the cost of travel from home to the United Kingdom and return, the cost of approved university or college tuition and other fees, maintenance allowance, and a travelling allowance of £25 extra within the United Kingdom for educational and cultural purposes. Further information and application forms may be obtained from Canadian University Registrars. The closing date for receipt of applications is January 15th.

OPEN TO GRADUATES IN LAW

MACDONALD TRAVELLING SCHOLARSHIP.—This scholarship was founded by the will of the late Sir William Macdonald "for the purpose of enabling English-speaking Law students to take a course of studies in France," the testator "deeming it of great importance that the English-speaking members of the legal profession should be proficient in the French language." The value of the scholarship is approximately $1,200. The scholar elected is required to pursue a year's study in the Law Faculty of a French university approved in each case by the McGill Faculty of Law. The award is made at the discretion of the Faculty to a student of the graduating class, proceeding to the Bar, who has obtained first or second class honours in the final examination and who would be unable without such financial help to spend a year in France. The Faculty interprets the will of the late Sir William Macdonald as intending that the scholarship be awarded only to men students preparing for practice as advocates in the Province of Quebec.

OPEN TO GRADUATES IN MEDICINE

NUFFIELD FOUNDATION MEDICAL TRAVELLING FELLOWSHIPS.—These awards of £770 to £890 plus travelling allowances are open to Canadian nationals between 25 and 30 years of age who hold recognized medical qualifications. Candidates must possess the talents and personal inclinations which afford good promise of their ability to advance knowledge and education in some branch of medicine as teachers or research workers. The fellowships are tenable at approved institutes in the United Kingdom. The fellow will be expected to resume residence in Canada on completion of the fellowship. Applications should be made to the General Secretary, National Research Council, Ottawa, Ontario, before January 1st.

FELLOWSHIPS OFFERED BY OTHER UNIVERSITIES

Graduates of McGill University who desire to undertake graduate study elsewhere should note that many universities offer fellowships and scholarships for which they may be eligible. Particulars of many of these may be obtained in the Registrar's Office. In many cases applications should be prepared not later than the January preceding the session for which the award is made.

D. FELLOWSHIPS AND SCHOLARSHIPS OPEN TO GRADUATES OF OTHER INSTITUTIONS FOR STUDY AT McGILL UNIVERSITY

A number of the awards listed in the preceding pages (Sections A and B) may be held by graduates of other institutions while pursuing graduate study at McGill University; these are listed below.

VARIOUS SUBJECTS

IMPERIAL OIL GRADUATE RESEARCH FELLOWSHIPS (see page 691).

INTERNATIONAL NICKEL CO. OF CANADA FELLOWSHIPS (see page 692).

SAMUEL LAPITSKY SCHOLARSHIP (see page 687).

NATIONAL RESEARCH COUNCIL SCHOLARSHIPS (see page 692).

ONTARIO RESEARCH FOUNDATION SCHOLARSHIPS (see page 692).

SOLVAY FELLOWSHIP (see page 685).

ARTHUR C. TAGGE FELLOWSHIP AND UNIVERSITY FELLOWSHIPS (see page 688).

UNION CARBIDE RESEARCH FELLOWSHIPS (see page 688).

CANADIAN FEDERATION OF UNIVERSITY WOMEN'S FELLOWSHIPS (see page 698).

McGILL UNIVERSITY CARNEGIE ARCTIC FELLOWSHIPS (see page 684).

AGRICULTURE

COMINCO FELLOWSHIP (see page 683).

WALTER M. STEWART SCHOLARSHIP (see page 686).

BIOLOGICAL SCIENCES

PHILIP CARPENTER FELLOWSHIP (see page 687).

CHEMISTRY

ALLIED CHEMICAL AND DYE CORPORATION FELLOWSHIP (see page 682).

AMERICAN VISCOSE CORPORATION FELLOWSHIP (see page 682).

C-I-L FELLOWSHIPS (see page 683).

CELANESE FELLOWSHIP (see page 682).

COMINCO FELLOWSHIP (see page 683).

RUSSELL J. EDDY FOUNDATION SCHOLARSHIP (see page 691).

GOTTESMAN FELLOWSHIP (see page 683).

T. STERRY HUNT RESEARCH SCHOLARSHIP (see page 684).

INCO FELLOWSHIP (see page 684).

SHELL OIL FELLOWSHIP (see page 685).

SPRUCE FALLS POWER AND PAPER COMPANY FELLOWSHIP (see page 686).

ECONOMICS

BRONFMAN FELLOWSHIPS (see page 687).

ALEXANDER MACKENZIE FELLOWSHIP (see page 688).

ENGINEERING

COMINCO FELLOWSHIP (see page 683).

INCO FELLOWSHIP (see page 684).

MIRON FELLOWSHIP (see page 685).

JOHN BONSALL PORTER SCHOLARSHIP (see page 689).

SHELL OIL FELLOWSHIP (see page 685).

SPRUCE FALLS POWER AND PAPER COMPANY FELLOWSHIP (see page 686).

GEOLOGY

INCO FELLOWSHIP (see page 684).

LEROY MEMORIAL FELLOWSHIP (see page 684).

SHELL OIL FELLOWSHIP (see page 685).

IMPERIAL OIL FELLOWSHIPS (see page 691).

WILLIAM HENRY HOWARD SCHOLARSHIPS (see page 651).

MEDICINE AND MEDICAL SCIENCES

SIR EDWARD BEATTY MEMORIAL SCHOLARSHIPS (see page 664).

A. A. BROWNE MEMORIAL FUND (see page 689).

G. RUTHERFURD CAVERHILL FELLOWSHIP (see page 694).

J. B. COLLIP FELLOWSHIP (see page 683).

JAMES COOPER FUND (see page 690).

JAMES DOUGLAS FELLOWSHIP (see page 690).

BLANCHE HUTCHINSON FUND (see page 690).

JOHN McCRAE FELLOWSHIP (see page 694).

H. W. MOLSON FELLOWSHIP (see page 690).

FELLOWSHIPS IN NEUROLOGY (see page 690).

OSLER MEMORIAL SCHOLARSHIP (see page 695).

GORDON PHILLIPS FUND (see page 690).

JOSEPH SCHUBERT MEMORIAL SCHOLARSHIP (see page 691).

JEANNETTE VICTOR MEMORIAL SCHOLARSHIP (see page 690).

HARRISON WATSON SCHOLARSHIP (see page 696).

PHYSICS

SHELL OIL FELLOWSHIP (see page 685).

The attention of applicants for admission to the Faculty of Graduate Studies is also drawn to the existence of demonstratorships and instructorships in certain departments (see page 681).

N.B.—From time to time scholarships, fellowships, or research grants are made available by industrial corporations to encourage research by graduate students upon specific problems suitable for M.Sc., M.Eng., or Ph.D. theses and for publication, but also of commercial significance. As such awards may be offered for only one or two sessions, it is not possible to have them listed in this Announcement; the Departments concerned should be consulted.

LOAN FUNDS

GRADUATE STUDENTS' LOAN FUND.—Established in 1951 by the Board of Governors for students in the Faculty of Graduate Studies and Research. Applications should be made to the Dean.

OTHER LOAN FUNDS.—For loan funds open to students in all faculties see page 629.

V. SCHOLARSHIPS, PRIZES, AND MEDALS IN VARIOUS SCHOOLS OF THE UNIVERSITY

OPEN TO STUDENTS IN THE LIBRARY SCHOOL

For scholarships and bursaries open to undergraduates in all Faculties *see page 622.*

DR. G. R. LOMER SCHOLARSHIPS.—Two annual scholarships of $400 each are available. Applications should be made to the Library School before July 1st.

ETHELWYN M. CROSSLEY SCHOLARSHIP FUND, founded in honour of a former student of the Library School. Women students are given preference.

ELIZABETH G. HALL SCHOLARSHIP FUND, founded in memory of a former member of the McGill University Library staff.

Awards from both these funds are made, after due investigation and recommendation, to deserving students who require financial assistance to take the course. Application should be made to the Director of the Library School.

LOAN FUNDS.—See page 629.

OPEN TO STUDENTS IN THE FRENCH SUMMER SCHOOL

FRENCH SUMMER SCHOOL SCHOLARSHIPS.—A number of Resident Scholarships varying in value from $75 to $125 are offered to teachers and to students of colleges and universities who are qualified to enter Section B (Intermediate) or Section C (Advanced). (*See French Summer School Announcement.*)

OPEN TO STUDENTS ENTERING THE SCHOOL FOR GRADUATE NURSES

SCHOLARSHIPS

UNIVERSITY SCHOLARSHIPS (see page 608).

Applicants for scholarships must meet the entrance requirements of the University (Junior Matriculation standing or its equivalent). Preference will be given to applicants with experience in the nursing field.

ALEXANDRA HOSPITAL.—The Board of Governors offers a scholarship in the form of full maintenance at the hospital during a year's study at the School for Graduate Nurses. Only members of the hospital nursing staff are eligible.

ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC:

(a) Two bursaries of $500 are customarily offered to a practising member in good standing of the Association of Nurses of the Province of Quebec whose qualifications are acceptable to a university for any approved course.

(b) District No. 11 (English Chapter) Association of Nurses of the Province of Quebec offers a bursary of $1,500 to a member of the Chapter, whose qualifications are acceptable to a university. The nurse who accepts the bursary will be expected to work in the Province of Quebec for two years following the completion of her course.

MONTREAL CHILDREN'S HOSPITAL SCHOOL OF NURSING.—The Board of Governors offers a scholarship in the form of lodging at the hospital during one year's study at the School for Graduate Nurses. Those accepting the scholarship are required to work for one year at the Montreal Children's Hospital on completion of the course.

MONTREAL GENERAL HOSPITAL SCHOOL OF NURSING.—Bursaries are provided annually by the Montreal General Hospital to graduate nurses for study to prepare them for administrative and teaching positions.

ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING:

(a) The Mabel F. Hersey Scholarship is given annually by the Board of Governors for a year of postgraduate study at the School for Graduate Nurses, McGill University.

(b) The Emma Thomas Scholarship is offered annually for postgraduate study.

(c) The Ida McGregor Scholarship is offered annually for postgraduate study.

VICTORIAN ORDER OF NURSES FOR CANADA.—The Victorian Order of Nurses for Canada offers bursaries of $750 to nurses to assist them in taking

postgraduate preparation in Public Health Nursing. The recipients are obligated, following their course, to work one year for the Victorian Order in the area where their services are most urgently needed.

QUEEN ELIZABETH HOSPITAL.—The Martha Warren Scholarship of $415 is offered by the Alumnae Association of the Queen Elizabeth Hospital School of Nursing to a member who wishes financial help for postgraduate study. Application for the scholarship must be submitted on or before April 25th of each year. The nurse accepting this scholarship is expected to work in the Queen Elizabeth Hospital for one year following completion of her course provided there is a position open in her field of study.

REDDY MEMORIAL HOSPITAL.—The Board of Directors offers a bursary to assist with a year's study at the School for Graduate Nurses. Only graduates of the School of Nursing or Staff Nurses in connection with the Hospital are eligible and should apply to the Director of Nursing.

GOVERNMENT BURSARIES.—A limited number of bursaries are made available through the School by the Province of Quebec for nurses who wish to remain in the province.

KELLOGG FOUNDATION LOAN FUND.—Through the generosity of the Foundation, this fund has been established to assist graduate nurses who have unexpected expenses while registered in courses at the school. For further particulars applicants should consult the Director of the School for Graduate Nurses.

OPEN TO STUDENTS IN THE SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY

For scholarships, bursaries, and loan funds open to undergraduates in all faculties see page 622.

DR. F. G. FINLEY BOOK PRIZE.—Awarded annually to the student with the highest standing in the Third year of the Diploma Course in Physical Therapy.

QUEBEC SOCIETY OF OCCUPATIONAL THERAPY BOOK PRIZE.—Awarded annually to the student with the highest standing in the practical application of Occupational Therapy in the Third year of the Diploma Course.

CANADIAN PHYSIOTHERAPY ASSOCIATION BOOK PRIZE.—Awarded annually to the student with the highest standing in the final year of the Degree Course.

LIEUTENANT-GOVERNOR'S GOLD MEDAL.—Awarded to the student with the highest standing throughout the Degree course.

OPEN TO STUDENTS IN THE SCHOOL OF SOCIAL WORK

A number of bursaries are available for each session.

Substantial financial assistance may be given under the Federal Provincial Health Grants to students desiring to qualify in psychiatric and medical social work.

Similar assistance is also available through some Provincial Governments in Canada and State Governments in the United States. Prospective students, other than those from Quebec, interested in obtaining such financial assistance should make inquiry through their provincial or state government.

A limited number of bursaries supported by private organizations are available.

While awards are made only to students of attainment and promise, the financial needs of applicants will receive consideration. Inquiries should be addressed to the Director.

Loans are available from the Social Work Alumni and Southam Loan Funds; and from the Pi Beta Phi Loan Fund established for the use of students in financing their training or in meeting temporary or emergency needs.

OTHER LOAN FUNDS (see page 629).

VI. MEDALS AND PRIZES IN THE DEPARTMENT OF ATHLETICS, PHYSICAL EDUCATION, AND RECREATION

I. FOR MEN

WICKSTEED MEDALS.—The Wicksteed silver and bronze medals for physical education (the gift of the late Dr. R. J. Wicksteed) are offered for competition to students of the graduating class and to students who have had instruction in the gymnasium for two sessions; the silver medal to the former, the bronze medal to the latter. The award of these medals is made by judges appointed by the University. The medal is not awarded to any student who fails in his examinations for the degree.

DR. F. W. HARVEY CUP.—Awarded to the winner of the Freshmen group in the Wicksteed Gymnastic Competition.

D. STUART FORBES TROPHY.—Awarded to the McGill student who, in the opinion of the Student's Athletics Council, has brought most credit to the University by reason of his athletic achievements.

DR. CHARLES F. MARTIN LAWN TENNIS TROPHY.—Presented by the late Walter Vaughan, a former Bursar, in honour of Dr. Charles F. Martin, this trophy is open for competition to undergraduate students of McGill University and is awarded to the winner of the annual singles competition. A miniature is presented to the winner for his retention.

WARREN HURD MEMORIAL TROPHY.—For the undergraduate half-mile champion in Track.

FOOTBALL TROPHIES

FRED WIGLE MEMORIAL TROPHY.—For the most sportsmanlike Senior Football player.

CLAIRE MUSSEN MEMORIAL TROPHY.—For the most valuable Intermediate Football player.

McGILL TOUCHDOWN CLUB TROPHY.—For the most valuable Lineman in Senior Football.

LOIS OBECK TROPHY.—For the most improved Senior Football player of the year.

W. S. LEA MEMORIAL TROPHY.—For the most valuable Senior Football player.

HOCKEY TROPHIES

DR. BOBBY BELL MEMORIAL TROPHY.—For the most valuable Senior Hockey player.

BERT FYON TROPHY.—For the most improved player on the Senior Hockey Team.

I. FOR WOMEN

DR. CHARLES F. MARTIN LAWN TENNIS TROPHY.—Presented by the late Walter Vaughan, a former Bursar, in honour of Dr. Charles F. Martin, this trophy is open for competition to undergraduate students of McGill University and is awarded to the winner of the annual singles competition. A miniature is presented to the winner for her retention.

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McGill University

Montreal

Faculty of Arts and Science

1957-1958

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Announcements of Faculties and Schools as follows:

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School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and School of Household Science.)
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The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

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Faculty of Arts and Science

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A complete list of the teaching staff of the University, including the Faculty of Arts and Science, is printed as a separate Announcement which may be obtained from the Registrar's Office.

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The Faculty of Arts and Science

(McGILL COLLEGE)

THE FACULTY AND ITS DEGREES

The undergraduate work of the University in Arts, in Pure Science, and in Commerce is done in McGill College, usually called the Faculty of Arts and Science. The Dean of McGill College is the Dean of the Faculty of Arts and Science. The following degrees are awarded in Faculty:

Bachelor of Arts (*B.A.*),
Bachelor of Science (*B.Sc.*),
Bachelor of Commerce (*B.Com.*),
Bachelor of Education (*B.Ed.*),

In the case of the first three of these degrees, the Faculty offers both a General Degree and an Honours Degree.

The Library School and the School of Social Work are integral parts of the Faculty which, therefore, recommends to Senate candidates for the degrees of *Bachelor of Library Science and Master of Social Work.*

The work of students who are candidates for the degrees of Bachelor of Commerce and Bachelor of Education is supervised, under the Dean, by the Directors of the School of Commerce and of the Institute of Education, respectively. While the School and the Institute are integral parts of Faculty, each has a separate Announcement.

APPLICATION FOR ADMISSION

All applications to enter the Faculty of Arts and Science must be made on forms which may be obtained from the Registrar's office. Each applicant from a High School should see that a confidential report is sent from his Principal to the Registrar, since such a report is necessary for the consideration of the application. Completed applications must reach the Registrar before August 31st, but it is advantageous for students to submit formal applications in the Spring months, supplementing them, if necessary, with the required certificates as soon as these become available.

Each accepted candidate will receive a formal acceptance into a definite course and year and this must be kept for presentation at Registration.

The number of admissions is limited and the College is not bound to accept applicants who have passed the required examinations.

MINIMUM AGE

Except in special circumstances, no student under the age of sixteen is admitted to the First year, or under the age of seventeen to the Second year.

WOMEN STUDENTS

Women are admitted to the courses and to the degrees of the Faculty on the same terms as men.

Women students whose homes are outside Montreal must make application, before May 31st, to the Warden of the Royal Victoria College for residence. At the same time, they must submit their academic applications (even if these are incomplete). Forms for these purposes are obtainable from the College or from the Registrar's Office.

Those women students in the Faculty who do not reside with their parents or guardians in Montreal and who wish to live outside the University residences are required to submit their plans for residence in writing to the Warden and to obtain written approval. Students in this category who are entering the University for the first time must in all cases fill out residential application blanks when the academic application is submitted.

ENTRANCE REQUIREMENTS (For the Session 1957-58)

See General Announcement for details.

Students may be admitted into the Faculty as regular undergraduates after obtaining the necessary standing in the required papers of the McGill Junior or Senior School Certificate examination, or their recognized equivalents. Full details concerning these examinations are given in the School Certificate Examinations Announcement, which may be obtained from the Registrar's office. *A student with incomplete matriculation qualifications is not admitted as a regular undergraduate.*

FIRST YEAR

A student may apply for admission to the First year of the undergraduate degree courses in the Faculty after obtaining the necessary standing in the appropriate subjects of the School Certificate Examination or in one of the examinations recognized by the University as the equivalent.

SECOND YEAR

A student may apply for admission to the Second year of these courses after obtaining the necessary standing in the appropriate papers of the

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School Certificate *and* Senior School Certificate Examinations or their recognized equivalents. Only in exceptional circumstances is a student who has not written and passed the School Certificate Examinations or their equivalent admitted by Senior School Certificate. At least a good second class standing in Senior School Certificate Examinations or their equivalent is required for entrance to the Second year.

A student who has been admitted to the First year and who has failed to advance to the Second year is not permitted to obtain advanced standing by writing Senior School Certificate Examinations, but, provided that he has not been excluded from further study for academic or other reasons, he is required to take the regular supplemental examinations of the First year if he desires to proceed in his course.

Students who are admitted to the B A. course without having satisfied the requirement of the Classical Language must include a classical language in their programme for two years. All applications for exemption from the classics requirement must be submitted in writing to the Dean prior to registration.

Candidates for admission to the University in the Second year of the B.A. course may offer, in place of Senior Matriculation Mathematics, another subject in which they have shown marked proficiency and which is in accordance with the trend of the studies which they are preparing to pursue. In general, however, students are advised to offer Mathematics. It is a prerequisite to all advanced courses in the Science division and must be taken if either Physics or Chemistry is included in the Senior Matriculation programme. It is also a required subject for students who intend to take courses in the Social Sciences, excluding History and Political Science. For this reason, unless a student intends to take Honours in one of the Humanities (English, Languages, Philosophy) or in Political Science or History, Mathematics is obligatory. In any case, no student will be permitted to offer another subject in place of Mathematics unless he or she has passed the Elementary Mathematics of the Junior School Certificate, or its equivalent, and has achieved at least 75% in the Junior School Certificate examinations in History, or a Modern Language, or Classics. Only a subject in which this 75% is obtained may be substituted for Mathematics. If they intend to pursue studies in History, Philosophy, or Political Science, candidates are expected to choose History as their substitute.

Students may be admitted to the Second year in the B.A. course with School Certificate German or Greek or Spanish as one of the five subjects required if they have not previously taken that subject for the School Certificate.

Full details of these examinations are given in the School Certificate Accouncement which may be obtained from the Registrar's Office.

THIRD YEAR

A student may apply to enter the Third year by submitting application forms as for First and Second years together with the necessary certificates of attainment.

REGISTRATION

All First year students in the Faculty of Arts and Science will register on Tuesday, September 17th, in the Sir Arthur Currie Memorial Gymnasium. Those in B.Sc. 1 and B.Com. 1 will register from 9.00 a.m. to 12 noon and those in B.A. 1 from 1.30 to 4 p.m. Students in the Second, Third, and Fourth years B.A., B.Sc., and B.Com. whose names begin with the letters A to L, and all students in the Third and Fourth years B.Ed. will register on Tuesday, September 24th and all students in the Second, Third, and Fourth years B.A., B.Sc., and B.Com. whose names begin with the letters M to Z, and all Partial students will register on Wednesday, September 25th, in the Gymnasium.

The Freshman Welcome meeting will take place on Wednesday, September 18th.

After September 25th a special late registration fee must be paid.

No student will be admitted after October 6th except by special permission of the Dean.

At the time of registration, women students in the Faculty will be required to fill out special forms for the Royal Victoria College, of which they are automatically members (see pages 308 to 311 of the General Information booklet enclosed with this Announcement).

Each regular undergraduate must be registered for the courses and year for which he has been accepted. Limited Undergraduates and Partial Students must obtain approval of their courses from the Admitting Officers before proceeding to register.

No undergraduate may attend classes in any course for which he is not registered. Students who withdraw during the session must cancel their registration on the official form provided at the Registrar's office.

PERIOD OF STUDY FOR A DEGREE

The bachelor's degree may be obtained only by students who have regularly attended the prescribed courses for at least four years after being admitted into the First year, or for at least three years after being admitted into the Second year. Students are admitted into the Third year only in exceptional circumstances and at least two full years of resident study in the Faculty are ordinarily required before the bachelor's degree can be granted.

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CLASSES OF STUDENT IN THE FACULTY

(1) *Regular Undergraduates* are students who have complete matriculation qualifications and who are taking the regular work of their year towards the appropriate degree.

(2) *Limited Undergraduates* are students who have complete matriculation qualifications but who find themselves unable, because of ill-health or other circumstances, to complete their degree work in the required four years. Such students may, with the Dean's permission, extend their course beyond the required period but must complete it within eight years.

Limited Undergraduates are not eligible for scholarships, medals, bursaries, or prizes of any description and may not read for an Honours degree.

(3) *Partial Students* are students who are not registered as proceeding to a degree but who are allowed to take one or more lecture courses. Partial students must obtain the Dean's permission to register and must satisfy the lecturer in the course concerned that they have sufficient ability to do the work in the course. Application may be refused because of limitation of space in lecture rooms and laboratories. A student who has tried, and failed, to pass matriculation is not allowed to register as a partial student except in special circumstances.

If a Partial Student hopes to secure credit for a course, he or she must fulfil all the requirements of classroom work and tests which are prescribed for that course for regular students.

A Partial Student who has successfully passed the courses of a previous year is not necessarily accepted at a later session.

Subject to the above limitations, lectures are open to Partial Students in both Honours and General classes. Such a student may request the Registrar to issue a certificate stating that he has followed certain courses and showing his class standing in each. Work taken by a Partial Student cannot, however, be counted towards a McGill degree without a special vote of Faculty.

Partial Students are not eligible for scholarships, bursaries, medals, or prizes.

COMMON FIRST YEAR

A student who is qualified by matriculation to proceed to the B.A. or B.Sc. degree and who does not know, at the beginning of his First year, which degree he desires to obtain, may qualify to enter the Second year leading to either of these degrees by taking in his First year—English, Mathematics, a Classical Language, Physics, and Chemistry. This is known as the *Common First Year* and the student pays the fee required for the First year B.Sc. course.

ATTENDANCE, EXAMINATIONS, AND ADVANCEMENT

The attention of students is called to a pamphlet entitled *Regulations Governing Attendance, Examinations, and Advancement* issued by the Faculty of Arts and Science. Copies are distributed at the time of registration. Extra copies may be obtained through the Dean's office.

SUBJECTS AND COURSES REQUIRED FOR THE DEGREE OF BACHELOR OF ARTS

Every candidate for the B.A. degree must meet certain requirements, whether he is proceeding towards an Honours or a General degree.

NUMBER OF COURSES

In each of the First and Second years, five courses must be taken, that is, normally fifteen hours of class work per week; and in the Third and Fourth years, respectively, four courses, making twelve hours per week. The third hour each week in each individual course may be devoted to group conferences.

THE FIRST YEAR OF THE B.A. COURSE

(FOR BOTH GENERAL AND HONOURS DEGREES)

(a) Compulsory Courses:

English 100
Latin *or* Greek
Mathematics

(b) Elective:

Two of the following:

Economics 100
Fine Arts
French
German
Greek *or* Latin (if not already taken)
Italian
History
Music
Science (Biology 100, or Geography 121, or Physics 11, or Geology 121)
Spanish

Details of the work in each subject are given on pages 1030 to 1163.

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Students who wish to qualify for the High School Diploma of the Province of Quebec have to fulfil certain additional requirements in both the First and Second years. See Announcement of the Institute of Education.

SELECTION OF COURSES

The student is normally free to elect *two* courses in the First year which, together with the three compulsory courses, complete the total of five required for that year. In choosing his courses, however, the student is advised by those who are registering him to give careful consideration to his selection. These points must be remembered:

Classics Requirement

In special circumstances, a student may be given permission to substitute another subject for Classics in the First year. Application for such permission must be made to the Dean prior to registration.

Mathematics Requirement

A student may be allowed to replace Mathematics by a First year course in a subject in which he has shown marked proficiency and which is in accordance with the trend of the studies that he is preparing to pursue. In general, however, students are advised to take Mathematics during the First year. It is a prerequisite to all advanced courses in the Science Division and must be taken concurrently with First year courses in Physics and Chemistry. It is also a required subject for students who intend to take courses in Social Sciences, excluding History and Political Science. For this reason, unless a student intends to take Honours in one of the Humanities (English, Languages, Philosophy) or in Political Science or History, the First year course in Mathematics is obligatory. In any case, no student will be exempted from the First year course in Mathematics unless he or she has passed the Elementary Mathematics of the Junior School Certificate or its equivalent, and has achieved at least 75% in the Junior School Certificate examinations, or their equivalent, in History or a Modern Language or Classics. Only a subject in which this 75% has been obtained may be substituted for Mathematics. If they intend to pursue studies in History, Philosophy, or Political Science, students are expected to choose History as the substitute.

Modern Foreign Language Requirement

All candidates for the degree must take a course in a modern foreign language, which may be taken in any year. Where a student chooses to begin the study of a language in order to meet either the classics or the

modern language requirement, he must take and pass a further course subsequent to the elementary one to satisfy this language requirement. This rule applies, for example, to a student who begins the study of Greek, Latin, German, Spanish, or Italian (there is no beginning course in French); in every case the elementary course alone will not satisfy the requirement for the B.A. degree. On the other hand, a beginning course is given full credit when it is taken as a simple elective which is not to be counted towards satisfying the language requirement, except that, in the Fourth year, such an elementary course is treated as only a half-course.

While it is possible to meet this requirement in any year, it is preferable that a student should meet it not later than the Second year, because a student who subsequently elects to take an Honours course in some subject other than a foreign language may find it difficult to take this compulsory language course in the Third or Fourth year when he is likely to be fully occupied with his Honours studies.

A student who has successfully completed his First year but who has not taken French, may obtain credit for First Year French by taking the prescribed course at the French Summer School immediately following the completion of his First year. Students who obtain this credit may be permitted to take four, instead of five, courses in their Second year.

A student who has successfully completed his First year, including French, may obtain credit for Second Year French by taking the prescribed course at the French Summer School immediately following the completion of his First year. Students who obtain this credit may be permitted to take four, instead of five, courses in their Second year.

It should be noted, however, that a student who has not taken five subjects in the regular session of his First or Second year will not be eligible for the Faculty Scholarships or for the Macdonald Scholarships.

Science Requirement

For the General B.A. degree, there is the further requirement of one course in a Science subject, which may be taken in any year.

A student proceeding to an Honours degree is not required to take a course in Science.

English Composition Requirement

Every candidate for a degree in this Faculty must satisfy the Department of English (which, in this matter, acts as the agent of Faculty) that he is competent in English composition. In addition to the other requirements for the degree, therefore, all students, in their First year in the

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Faculty, must register in English 100C. When a student has succeeded in demonstrating his competence in this course, he will be dispensed from further attendance at it.

NOTE ON PREREQUISITES

If a student intends to take an Honours course, he must be careful to select the course in the First year which is the prerequisite for such Honours study in the Second year. A student who intends to study a subject for Honours or Continuation is warned to look up the requirements of the appropriate departments, given on pages 1030 to 1163.

A student who hopes to enter either the Faculty of Medicine or that of Dentistry upon the completion of his Third year, must take both Mathematics and Physics in his First year.

ADVANCED COURSES IN THE FIRST YEAR

Some departments which give instruction in the First year offer special lectures or work of a more advanced character to students with adequate qualifications.

These advanced courses are generally arranged by the departments when lectures actually commence, but any student who enrols in an advanced section *must* see that his registration, as recorded in the Assistant Dean's office, shows that he is taking advanced work.

Students of scholarship standing entering the First year may, with the approval of the Dean, take Second year courses in subjects for which they are especially qualified.

THE GENERAL B.A. CURRICULUM IN SECOND, THIRD, AND FOURTH YEARS

At the beginning of the Second year, a student proceeding to a General B.A. degree must choose two subjects from those listed below in Division I. These two subjects are designated *Continuation Subjects* and are to be studied during the Second, Third, and Fourth years. A full course (or two half-courses) must be taken *each* year in each of the Continuation Subjects. The additional courses necessary to make the total of five for Second year, and four for each of the Third and Fourth years, may be chosen from any of the subjects shown in either Division I or Division II below. In choosing his elective courses, the student may seek the advice of one of the departments in which he chooses a continuation course.

A student may select only those courses for which he has the prerequisites laid down by the department in which such courses are given, and he is responsible for seeing that the courses chosen do not conflict with each other as regards hours of lectures or laboratory periods.

When the student's record during his Second, Third, and Fourth years of the General Course averages a high second class standing, a special award of *Distinction* is made at graduation. When the record averages first class standing, the award made is *Great Distinction.*

Division I (Continuation)

Anthropology
Economics
English
French
Geography
German
Greek
History
Italian
Latin
Mathematics
Philosophy
Physics (when taken as a Continuation Subject with Mathematics)
Political Science
Psychology
Sociology
Spanish

Division II (Elective)

Subjects in Division I and:

Ancient History
Bacteriology
Biochemistry
Botany
Chemistry
Education
Fine Arts
Genetics
Geography
Geology
Linguistics
Music
Physics
Physiology
Religion
Zoology

A course intended primarily for First year students may be counted as a full course in the Second year.

Students who are pursuing a double course in Arts and Science and Divinity (six years at least) may, in the Third and Fourth years, take the courses which constitute the ordinary curriculum in Arts and Science, less a half course each year or a whole course in one year.

Honours lecture courses are open to properly qualified general students.

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SUBJECTS AND COURSES REQUIRED FOR THE DEGREE OF BACHELOR OF SCIENCE

An undergraduate may proceed to either a General or an Honours B.Sc. degree. As the distinction between these is not made until the Second year (or, in some cases, the Third year), there is a common curriculum to be followed by all First year students.

THE FIRST YEAR OF THE B.Sc. COURSE

(FOR BOTH GENERAL AND HONOURS DEGREES)

(a) Compulsory Courses:

English 100
Mathematics 111
Physics 11
Chemistry 11

(b) Elective:

Biology 100
or one of the following, if the timetable permits:
Economics 100
Fine Arts
French
Geography 121
Geology 121
German 3
Greek
History
Italian
Latin
Music
Spanish

More advanced courses are available also in Chemistry, Mathematics, and Physics for those specially qualified or contemplating Honours.

ENGLISH COMPOSITION REQUIREMENT

Every candidate for a degree in this Faculty must satisfy the Department of English (which, in this matter, acts as the agent of Faculty) that he is competent in English composition. In addition to the other requirements for the degree, therefore, all students, in their First year in the Faculty, must register in English 100C. When a student has succeeded in demonstrating his competence in this course, he will be dispensed from further attendance at it.

THE GENERAL B.Sc. CURRICULUM IN THE SECOND, THIRD, AND FOURTH YEARS

In each of these years, five courses are required; these courses must be spread over at least four subjects, and must be selected from the groups given below. The student is also required to pursue a continued study of two subjects during the major part of his last three years for the General degree. The normal sequence of courses in any subject chosen for continuation is shown in Group I below. Since courses in Bacteriology, Biochemistry, and Physiology are usually begun in the Third year, a student is not obliged to choose these subjects for continued study until the beginning of his Third year; in other cases, he will commence his continuation subjects at the beginning of his Second year. In any year, a specially qualified student may be allowed, upon the recommendation of the department concerned, to substitute a more advanced course for any of those listed.

SECOND YEAR REQUIREMENTS

Three Science subjects from Group I; one Arts course from Group III; and one course from Group I or II or III.

THIRD YEAR REQUIREMENTS

Two Science subjects from Group I; one further subject from Group I or II; one Arts course from Group III, and one course from Group I or II or III.

FOURTH YEAR REQUIREMENTS

The same as for Third year, the two subjects previously chosen from Group I being continued throughout this year. It is permissible, however, to drop one of these continuation subjects in the Fourth year provided that two courses be taken in the remaining continuation subject; in this case the student's courses may be spread over three instead of four subjects.

GROUP I (Continuation Subjects)

SUBJECT	SECOND YEAR	THIRD YEAR	FOURTH YEAR
Bacteriology		31	42, 43b
Biochemistry	See below	31	43 or 44
Botany	11b or 21 or 22 or 23	21 to 45	21 to 45
Chemistry	22a, b or 24	22a, b or 24	23, 27, 32
Genetics	21	32a, 32b, 36 and 45b	42b to 47b inclusive
Geography	221, 231	321, 414a, b	416, 421
Geology	121 or 221	221-444	221-444

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Mathematics	224	332 or 337	439, 436
Physics	22	23, 24, 25, 27b	(32, 35a), (43a, 44b), (35a, 47a), (35a, 44b)
Physiology	22	22, 31, 32	31, 32, 41, 42
Psychology	21, 22a or 22b	34a, 34b, 36, 37	43, 46a, 46b
Zoology	211, 221	221, 322, 324, (325+325L) 332, 337a, 343b, 345, 446a	324, (325+325L) 337a, 341, 433, 435, 446a

If Biochemistry is to be taken as a continuation subject in the Third year, Chemistry 22 and Physiology 22 must be taken in the Second year.

A student who has not completed Biology 100 must obtain permission from the department concerned before proceeding to more advanced courses in Botany or Zoology.

Students who select Physics as a continuation subject must also select the following Mathematics courses: 224 or 225 in Second year; 337a and 337b in Third year; or 337a in Third year and 337b in Fourth year.

GROUP II (Non-continuation subjects)

SUBJECT	COURSES
Bacteriology	31
Biochemistry	31, 44
Botany	11b to 41
Chemistry	22a, b, 23, 27, 24, 32
Geography	121 to 421
Geology	121 to 444
Genetics	21a to 47a or b
Histology	Anatomy 1a
Mathematics	221a; 224; 228a; 335a, b; 337; 339; 443; 436
Physics	21, 22, 23, 24b, 25, 32, 35a, 43, 44b
Physiology	21 or 22, 31, 32, 41, 42, 43a, b
Zoology	100, 221, 324, (325+325L), 332, 435, 337a, 343b, 345, 446a.

GROUP III (Arts subjects)

Economics	Italian
Education	Latin
English	Music
Fine Art	Philosophy
French	Political Science
Geography	Psychology
German	Religion
Greek	Sociology
History	Spanish

B.Sc. students who select Geography or Psychology as a Continuation Subject may not select the same subject from Group III.

In selecting advanced courses, students should consult the Departments concerned.

Details of the courses are given on pages 1030 to 1163.

When the student's record during his Second, Third, and Fourth years of the General Course averages a high second class standing, a special award of *Distinction* is made at graduation. When the record averages first class standing, the award made is *Great Distinction.*

GENERAL REGULATIONS GOVERNING THE HONOURS DEGREE

The course for the Honours degree is distinguished from that of the general degree rather by quality than by quantity. In a very few cases, the honours curriculum may be regarded as providing pre-professional training and, in almost all Departments in which honours work is given, it forms a bridge between undergraduate training and graduate; but it is governed fundamentally by the belief that a relatively intense study of one field, not too narrowly limited, is the best medium of *general* education. A student who has gone sufficiently far in the study of one subject to have become aware of the assumptions on which that study rests and of the difficulties which its methods have been shaped to meet, and who has been introduced to the kind of material with which more advanced work in the subject is concerned, has probably undergone a better general mental discipline than the student who has sampled a variety of useful, but not very deeply developed, studies. While the honours curriculum, therefore, may be thought to be 'narrow', in the sense that the student is directed, in the latter years of his course, to the study of one or two subjects only, it is 'broad' in the sense that its purpose is to provide a more acute and discriminating, because more unified and systematic, intellectual training than is possible under the condition of the general degree.

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Since the aim of the Honours curriculum is to develop critical and analytical ability, as distinct from, and in addition to, the imparting of information, it requires the student to exercise his own initiative and to develop the capacity to do much of the work for himself under guidance and direction. Part of the work (the situation varies as between Departments) dispenses with formal lectures and proceeds by group, or individual, tutorials, so that the student reading for the Honours degree enjoys close and continuous supervision of his work by individual tutors.

The conditions for entering Honours courses in Second year are as follows:

(*a*) The sanction of the Dean and of the departments in which Honours are elected must be obtained.

(*b*) No student may take Honours in a subject in which he has failed to attain at least second class standing in his First year.

Honours students who fail to attain second class honours standing at the end of the Second or Third year must revert to the General course in their next and following year or years and fulfil its requirements unless they obtain special leave to continue their Honours work from the department or departments interested.

An Honours student who has failed in any subject in the Third year examinations is not allowed to continue his Honours course except with the consent of Faculty.

A student's whole record during his Second, Third, and Fourth years will be considered in awarding Honours at graduation.

Students in Honours courses who fail to attain Second Class Honours at graduation must revert to the list of General students and, if they are unable to satisfy the requirements of the General degree, they will not be granted a degree.

Honours are awarded by Faculty on the recommendation of the department or departments in which Honours are elected.

THE HONOURS B.A. CURRICULUM IN THE SECOND, THIRD, AND FOURTH YEARS

Undergraduates may read for the Honours B.A. in any one of the following single subjects:

Anthropology
Classics
English
French
Geography
German
Greek
History
Latin
Mathematics
Philosophy
Psychology
Sociology

They may also read for the degree in the following combinations of two subjects:

Economics and Political Science
Mathematics and Physics
Various combinations of the single subjects given above

In the case of Honours in a single subject (e.g. English) the detailed description of the curriculum will be found under the appropriate Department.

In the case of Joint Honours in two subjects, the detailed description of the curriculum will be found under that one of the two Departments which has alphabetical precedence. Thus, Joint Honours in English and History is described under the Department of English (since "E" precedes "H") but Joint Honours in History and Political Science is described under the Department of History (since "H" precedes "P").

THE HONOURS B.Sc. CURRICULUM IN THE SECOND, THIRD, AND FOURTH YEARS

Honours courses begin normally in the Second year and are offered in the subjects listed below. Information as to courses to be taken can be found at the end of the descriptive material listed by the appropriate department on pages 1030 to 1163.

Attention is drawn to the fact that lectures are not given on all parts of the work. The examinations for Honours are not necessarily conducted exclusively by the persons who have given the courses.

HONOURS COURSES OFFERED FOR THE B.Sc. DEGREE

Bacteriology and Immunology
Biochemistry
Botany
Chemistry
General Honours in
Biological Sciences
Genetics
Geography
Geological Sciences
Geology and Physics
Mathematics
Mathematics and Physics
Physics and Physiology
Physiology
Psychology
Zoology

GENERAL HONOURS IN BIOLOGICAL SCIENCES

As indicated above, students may proceed to an Honours degree in some one of the various Biological Sciences. Alternatively, they may proceed to an Honours degree in *General Honours in Biological Sciences* (as described below), postponing specialization in a particular Science (including Genetics), until postgraduate years. This General Honours course provides a balanced study of the Plant and Animal Kingdoms,

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with a suitable admixture of Genetics, and is a basic training in plant and animal studies. It is of value to pre-teacher, pre-dental, and pre-medical students, and for those who have an interest in the Biological Sciences, but who do not wish for the marked specialization of an Honours degree in a single Science.

Students who obtain a high second class average in this course are eligible for admission (with approval) to the Faculty of Graduate Studies and Research, but they may have to spend additional time in fortifying their knowledge of a particular field.

CURRICULUM OF GENERAL HONOURS IN BIOLOGICAL SCIENCES

Note: Students are reminded that courses chosen in any one year may affect the taking of other courses in subsequent years. *It is essential for this course that Biology 100 should be taken in B.Sc. 1.*

Students must apply for entry to this course to the Chairman of the Biological Sciences Group, and must obtain his approval before they will be permitted to register for this General Honours Course.

Prerequisite	General First year B.Sc. with the required standing (at least Second Class). Biology 100 must be taken.
2nd year	Botany 11b, 21; Chemistry 22a, b; Genetics 21; Zoology 221.
3rd year	Botany 23a, 22b, 31; Physiology 22; Zoology 211, 222.
4th year	Bacteriology 31; Biochemistry 31; Genetics 32a; Genetics 36b *or* 45a; Zoology 324 or 332 plus a fifth course in the form of a free option from the list below.
Free options	(to be taken where indicated)— Botany 32, 33; an English course beyond English 100; a French course; Genetics 44 (or any other course in statistics); Genetics 45a; Geography 121; Geology 121; a German course; Philosophy 310; Physics 21; Psychology 21; Zoology 325 plus 325L; Zoology 433.

CONCERNING STUDENTS WHO INTEND TO PROCEED INTO THE PROFESSIONAL FACULTIES

Each regular undergraduate in the faculty is required to register for one of the bachelor's degrees offered, and, unless otherwise instructed by the Dean, must follow the regular work of his year towards this degree.

Although there are no specially organized courses for preparing candidates for other faculties, it is possible to include the prerequisites to entrance to these faculties within the framework of the B.A. and B.Sc. curricula. Students intending to enter one of these faculties later should acquaint themselves with the entrance requirements as shown in the individual Announcements.

Students proceeding into the Professional Faculties should note particularly that admission to these Faculties is not automatic: regular application forms must in all cases be submitted in advance of the prescribed dates, accompanied by such other documents as the Faculties may require.

DENTISTRY: At least two years of the B.A. or B.Sc. courses are required for entrance to First year Dentistry. If a student wishes to enter after two such years he must take Physics 11 and Chemistry 11 in his First year in Arts and Science; the other subjects required are Chemistry 22a and 22b and Biology 100. (B.A. students should note page 1018.)

LAW: A minimum of two years in the Faculty of Arts and Science is required for admission into the Faculty of Law. Nevertheless, candidates proceeding to the Bar of the Province of Quebec must be British subjects, hold the degree of B.A. from a Canadian or British University and satisfy the Bar examiners that they have successfully completed "the regular course in Philosophy" in an approved university. Students are advised to take this course in Philosophy before entering the Faculty of Law. The following courses are available: Philosophy 200, 300, 310 and 320 (see page 1114). In addition candidates are expected to have a working knowledge of French.

MEDICINE: The Faculty of Medicine offers the following advice to students proceeding in pre-medical studies at McGill:

1. Absolutely required are courses in Physics, General and Organic Chemistry, and Biology. These requirements can be met by passing Physics 11; Chemistry 11 and 22a, b; and Biology 100.

2. Other courses chosen for three pre-medical years should be so planned as to give the student more than elementary training in some definite field of knowledge, which may be selected from the Humanities, the Social Sciences, or the Physical or Biological Science. The curriculum for the three years should therefore be planned as a whole, so as to emphasize the selected field. Study in this field should be continued by students who fail to gain admittance to medicine after three years.

3. The curriculum must be in harmony with the requirements of the Faculty of Arts and Science or the B.A. or B.Sc. degree. English 100 and Mathematics will be taken in the First year. Continuation subject requirements must be complied with, and these subjects should be related to and reinforce each other, in the spirit of paragraph 2.

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4. Students taking a pre-medical course within the B.A. curriculum are advised to take English, Mathematics, Physics, Latin and an elective course (preferably leading to the field of specialization) in the First year; Chemistry 11 and Biology 100, the continuation subjects, and a modern language in the Second year; Chemistry 22a, b, two courses in one continuation subject and one in the other, in the Third year.

5. Students entering through the B.Sc. curriculum will ordinarily complete the required courses (paragraph 1) very quickly and can proceed to specialize in the selected field. Those who expect to enter Medicine after three years are advised against taking prematurely the medical subjects such as Physiology, Biochemistry, Bacteriology, and Histology. There is, however, a definite place in Medicine for students who have completed an Honours course or a Master's degree in one of these sciences, or in Chemistry, Physics, etc.

6. Courses which are of value as preparation for medical studies, and of which some may be taken as electives or as extras if the curriculum in the major field permits, include Biology 100, Genetics 21a, Psychology 21, Sociology 21, Genetics 21b, Zoology 211, 221, 324, (325+325L).

7. The Medical College Admission Test, conducted by the Educational Testing Service, should be taken in the second term of the Second year or the first term of the Third year.

8. B.A. students should also see note on page 1018.

B.A. AND B.Sc. DEGREES FOR STUDENTS IN MEDICINE AND DENTISTRY

Students who have completed with good second class standing three years of the General Course leading to the Arts degree and two years in the Faculty of Medicine or Dentistry will, on application, be recommended by the Faculty of Arts and Science for the B.A. degree, if they have satisfied all the specific requirements of the First, Second, and Third years for the B.A. degree as to subjects, and in each of the Second and Third years taken three courses in Arts subjects so chosen as to fulfil the requirement of continuation study or its equivalent.

Students completing three years in the course leading to either the Arts or the Science degree and two years in Medicine or Dentistry are entitled to apply to the Faculty of Arts and Science for the degree of B.Sc. Students will not, however, be recommended for the B.Sc. degree unless they have satisfied the specific requirements for that degree or their equivalent. Students with high distinction in the first years of the B.Sc. course who maintain that standing in the first two years in Medicine at McGill will be granted the degree with Distinction or Great Distinction.

SUMMER SCHOOL IN FRENCH

The French Summer School is held every year, commencing in the final week of June and lasting six weeks.

Its courses are distributed among three Sections: A, B, and C, one of which, Section A, is below college standard. They deal with the various aspects of language study as well as literature and civilization. Courses in spoken French are divided into small classes for the purpose of intensive oral drill. In this respect the School definitely supplements the instruction given in the Department in the winter session, when such oral practice is only incidental to the subject-matter of the courses offered and is never the primary objective. It should be noted that the First year course given in the French Section of the Department of Romance Languages is not a beginner's course and is conducted entirely in French. (The standard qualification for admission into Section A is two years of High School French.)

For this reason, students who find it difficult to understand, speak, or write French are recommended to avail themselves of the special facilities which the School offers in its three sections, and particularly in Sections A and B for a systematic study of the language, oral and written. Section C is specially intended for graduate students or students interested in pursuing higher studies in French.

With the permission of Faculty, courses in Sections B and C may be counted towards the Bachelor's degree in cases where students need to make up the number of courses normally required for the degree. Students in Section C, who attend the School for at least four sessions and satisfy the requirements, can obtain an M.A. in French without having to reside at McGill during any of the winter sessions.

Students receive most benefit from the courses offered by the School if they choose to reside in one of the French Houses, where the use of French at all times is compulsory. Members of the teaching staff live in residence with the students and are constantly in helpful and friendly relationship with them. This informal education through daily association in the Common Room, at meals, and in social activities—which include sports, music, dramatics, and conducted visits through the beauty-spots of the Province of Quebec—is one of the most valued features of the School.

Reduced railway fares from all points in Canada have been arranged.

Applicants should address their inquiries to: The Director, French Summer School, Arts Building, McGill University, Montreal 2.

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FEES

The regular and special fees payable by students in the Faculty of Arts and Science, including the School of Commerce, are shown below. The University reserves the right, however, to make changes without notice in its published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions as described in the General Information Pamphlet.

TUITION

REGULAR UNDERGRADUATES

Sessional Fee: Arts	$450.00
Science	450.00
Commerce	450.00
Courses repeated or substituted by Conditioned Students, per full course	10.00

LIMITED UNDERGRADUATES AND PARTIAL STUDENTS (Arts, Education, Science, Commerce)

Each full course	$100.00
Each half course	50.00
Courses in Physical Education taken by Partial Students in Arts, per hour, per week	5.00

For further particulars concerning fees of all kinds, and the governing regulations, see the General Information Pamphlet which is included in this Announcement.

Courses of Lectures in Arts and Science

The following pages show the courses offered in the Faculty arranged according to Departments. These courses are listed by numbers and where a small letter follows a number the term in which the course is given is indicated: e.g., History 315a is given in the first term (October to January), History 315b in the second term (January to April).

In addition the words "full course," "half course," etc. indicate the course value. The letter L indicates laboratory and S a special course.

Unless otherwise stated, a full course begins in October and ends in April, whereas half courses are given in the term indicated. The number of hours of lectures given each week is shown immediately below the number of the course, and laboratory or conference hours are indicated separately.

An official time table is prepared for the registration periods; any times shown herein are only tentative.

It is the responsibility of each student to make sure at the time of registration that there is no conflict in the timetable of the courses which he proposes to follow.

Any course may be cancelled because of insufficient registration.

ANATOMY

Professors	C. P. LEBLOND, *Chairman* C. P. MARTIN
Associate Professors	S. M. BANFILL J. LANGMAN
Assistant Professor	Y. CLERMONT
Hon. Lecturer	E. W. WORKMAN
Lecturers	B. E. WALKER L. HELLER

Before registering for the following course, students must consult the Chairman of the Department to ensure that they are qualified to undertake the work.

MICROSCOPIC ANATOMY

1a. HISTOLOGY. (Half course). The course, which corresponds to Anatomy 6 in the medical curriculum, consists of three weekly classes during the first half year. The course begins at the opening of the medical session, in September.

Two lectures and six hours laboratory per week, from approximately September 6th to the end of February.

Text: Ham, Histology; Bailey, Textbook of Histology *or* Maximow and Bloom, Histology.

BACTERIOLOGY AND IMMUNOLOGY

Professor	R. W. REED, *Chairman*
Associate Professors	J. W. STEVENSON G. G. KALZ

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Assistant Professors	Fritz Blank
	C. A. Butas
	Grace T. Girvin
	K. F. Girard
	C. D. Kelly
	A. M. Masson
Lecturers	J. A. deVries
	E. Mankiewicz
	O. Morgante
	F. H. Prissick
	Raissa Silov
Demonstrator (Teaching Fellow)	C. E. Tanner

In addition to its courses in the Faculty of Medicine the Department offers the following to students in the Faculty of Arts and Science:

31. ELEMENTARY BACTERIOLOGY AND IMMUNOLOGY (Full course). This course deals with the fundamentals of immunology and of bacterial cytology, physiology and classification. The applications of bacteriology in industry, agriculture, medicine and public health are discussed. The laboratory work provides practical experience in the cultivation and isolation of bacteria and demonstrates their diverse activities.

Both terms: 2 hours lecture and 2 laboratory periods.

Prerequisites: First year Science with Biology 100, Chemistry 22. It is recommended that Biochemistry 31 be taken concurrently.

Text: Frobisher, Fundamentals of Microbiology (Saunders).

42. ADVANCED MICROBIOLOGY (One and a half courses). A systematic study of bacteria, viruses and medically important fungi. This class is limited in size and priority is given to Honours students in the biological sciences.

Both terms: 3 lectures, 2 three hour laboratory classes.

Prerequisites: Bacteriology 31, Biochemistry 31.

Text: Topley & Wilson, Principles of Bacteriology and Immunology, 4th Edition (Arnold) 1956.

43b. IMMUNOLOGY (Half course). A study of the fundamental aspects of antigen-antibody reactions and their practical applications.

Second term: One lecture, 2 three hour laboratory classes.

Text: Carpenter, Immunology and Serology (Saunders), 1956.

44. BACTERIOLOGY READING COURSE AND THESIS (Full course). Students are required to write a 5000 word review of the literature on a selected topic. The course is offered only to Honours students in Bacteriology.

Prerequisites: as for Course 42.

CURRICULUM FOR B.Sc. HONOURS IN BACTERIOLOGY AND IMMUNOLOGY

Prerequisite: An aggregate standing of high second class must be obtained in the subjects submitted for the First year and good standing maintained in subsequent years.

The Chairman of the Department should be consulted in selecting subjects to be studied in the Second and Third years.

The following course of study has been found suitable for most students but may be modified to suit individual cases.

First year: First year B.Sc. preferably including Biology 100.

Second year: Physiology 22; Zoology 221; Chemistry 22 and 24; Genetics 21.

Third year: Biochemistry 31; Zoology 322a; Zoology 325, 325L; Bacteriology 31, and one elective half course.

Fourth year: Bacteriology 42 ,43b and 44; Biochemistry 45; Genetics 42b; one elective half course.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

BIOCHEMISTRY

Professors	D. L. THOMSON, *Chairman* J. H. QUASTEL
Associate Professors	O. F. DENSTEDT K. A. C. ELLIOTT R. D. H. HEARD
Sessional Lecturers	ESAU HOSEIN MARGARET PURVIS P. G. SCHOLEFIELD

31. GENERAL PHYSIOLOGICAL CHEMISTRY (Full course with Laboratory). A general survey of the chemistry of carbohydrates, fats, steroids, and proteins, their transformations in the body, and the composition of the

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body in health and disease. Two laboratory periods per week, October to February.

2 hours plus laboratory *Professor Thomson*

Prerequisite: Chemistry 22 (a and b), Physiology 22.

Text: Harper, Review of Physiological Chemistry (Lange). The Department issues a synopsis of the laboratory course.

32. ENDOCRINOLOGY (Half course). The chemistry and pharmacology of the hormones.

1 hour *Professor Thomson*

Prerequisite: Biochemistry 31 (may be taken concurrently).

Text: Grollman, Essentials of Endocrinology (Lippincott).

NOTE:—The Medical course in Biochemistry consists of courses 31 and 32 and course 33, three lectures weekly in May on Nutrition. Dental students will omit course 32. Course 33 carries no credit in Arts and Science and is not normally open to students of that Faculty.

34. SUPPLEMENTARY BIOCHEMISTRY (Half course). For Honours students in the Department only. A tutorial course parallel to 31.

1 hour *Professor Thomson*

Text: Fruton and Simmonds, General Biochemistry (Wiley).

43. ADVANCED BIOCHEMISTRY (Full course). A detailed study of the organic chemistry of carbohydrates, fats, steroids, amino-acids, and proteins.

3 hours *Professor Denstedt*

Texts: Hawk, Oser, and Summerson, Practical Physiological Chemistry (Blakiston); Fruton and Simmonds, General Biochemistry (Wiley).

43L. LABORATORY (One and one half courses). For Honours students in the Department only.

4 periods *Dr. Hosein*

Prerequisite: Biochemistry 31, Chemistry 23.

44a. NUTRITION (Half course). Human requirements for calories, protein, and other nutrients; the chemical nature, detection, occurrence, and physiological function of the vitamins; the essential minerals.

First term: 3 hours *Mrs. Purvis*

Prerequisite: Biochemistry 31.

Text: Sherman, Chemistry of Food and Nutrition (Macmillan).

44b. PROTEIN PHYSICAL CHEMISTRY (Half course). The physico-chemical properties of solutions of amino-acids and proteins, including conjugated proteins and enzymes; ionic reactions, molecular size and shape, solubility, optical properties, enzyme kinetics.

Second term: 3 hours *Professor Thomson*

Prerequisite: Biochemistry 31, Chemistry 24; Biochemistry 43 should be taken concurrently.

Texts: Haurowitz, Chemistry and Biology of Proteins (Academic Press); Springall, Structural Chemistry of Proteins (Butterworth).

45. OXIDATION AND METABOLISM (Full course). The nature of biological oxidations and reductions and the enzymes concerned therewith, especially from the point of view of transfer of energy; the reactions of intermediary metabolism of organic foodstuffs as studied by isotope and other methods.

2 hours *Professors Thomson and Quastel*

Prerequisite: Biochemistry 31.

Texts: Baldwin, Dynamic Aspects of Biochemistry (C.U.P.); Fruton and Simmonds, General Biochemistry (Wiley).

HONOURS COURSE IN BIOCHEMISTRY

First year

First year B.S., Biology 100 recommended.

Second year

Physiology 22

Chemistry 22, 23, 27

Zoology 221

Mathematics 224

Third year

Chemistry 24

Biochemistry 31, 34

Physiology 31, 32

Bacteriology 31

Quota of five courses to be completed from: Chemistry 32, Mathematics 221a, Physics 23, Genetics 44, Biochemistry 32.

Fourth year

Biochemistry 32 (if not already taken), 43, 43L, 44a, 44b, 45

Changes in this programme may be permitted in special cases.

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BOTANY

Professors	MURIEL V. ROSCOE, *Chairman*
	R. D. GIBBS
Associate Professor	C. M. WILSON
Assistant Professors	W. BOLL
	G. H. N. TOWERS
Lecturer	P. F. MAYCOCK

100. THE HIGHER PLANTS AND ANIMALS (Biology 100). (Full course.) An introductory course in Biology, covering the higher plants and animals. The course is given in two Sections. Section X considers the plants in the first term and the animals in the second term. Section Y considers the animals in the first term and the plants in the second term.

This course (or its equivalent) is a prerequisite to further courses in Botany.

2 hours lectures and 3 hours laboratory.

Botany: *Professors Roscoe, Wilson, Boll and Maycock*

Zoology: *Professors Berrill and Stanley*

11b. GENERAL BOTANY. A Survey of the Plant Kingdom (Half course). A study of representatives of the main plant groups on an evolutionary basis.

Second term: 2 hours lectures and 3 hours laboratory

Professors Gibbs and Maycock

21. TAXONOMY OF THE HIGHER PLANTS (Full course). A practical introduction to the morphology and classification of the seed plants, giving special attention to the identification and significance of Canadian species.

2 hours lectures and 3 hours laboratory *Professor Gibbs*

Prerequisite: Biology 100 or Botany 11b.

22a. PLANT ANATOMY (Half course). A detailed study of the organization of vascular plants; internal structure and its relation to function.

First term: 2 hours lectures and 3 hours laboratory *Professor Towers*

Prerequisite: Biology 100.

22b. COMPARATIVE ANATOMY (Half course). The anatomy of vascular plants viewed in relation to development and evolution.

Second term: 2 hours lectures and 3 hours laboratory *Professor Roscoe*

Prerequisite: Botany 22a.

23a. MYCOLOGY (Half course). General characteristics of the fungi; morphology and classification, life cycles and economic importance. Particular reference is given to the Myxomycetes, Phycomycetes and Ascomycetes.

First term: 2 hours lectures and 3 hours laboratory *Professor Wilson*

Prerequisite: Biology 100 or Botany 11b.

23b. MYCOLOGY (Half course). Morphology and classification of the Basidiomycetes and Fungi Imperfecti with emphasis upon cultural techniques.

Second term: 2 hours lectures and 3 hours laboratory *Professor Wilson*

Prerequisite: Botany 23a.

31. PLANT PHYSIOLOGY (Full course). A general introduction to the study of the physiological functioning and reactions of plants. Topics such as water relations, photosynthesis, mineral nutrition, respiration, growth, and metabolism are discussed in detail.

2 hours lectures and 3 hours laboratory *Professor Towers*

Prerequisite: Biology 100 and Chemistry 22.

32. MORPHOLOGY AND TAXONOMY OF THE LOWER PLANTS (Full course). Life histories, structure, and relationships of the Algae, Fungi, Lichens, Mosses and Liverworts, Ferns, and other non-flowering plants.

2 hours lectures and 3 hours laboratory *Professor Gibbs*

Prerequisite: Biology 100 and Botany 11b.

(*Not given in 1957-58; given in 1958-59.*) .

*33. PLANT BIOCHEMISTRY (Full course). Chemistry, occurrence, and roles of organic materials found in plants, and methods for their detection and estimation. Some reference is made to economic uses of plants.

2 hours lectures and 3 hours laboratory (6 hours laboratory for graduate and honours students) *Professors Gibbs and Towers*

Prerequisite: Biology 100 or Botany 11b, Chemistry 22.

(*Given in 1957-58; not given in 1958-59.*)

*41. MICROTECHNIQUE (Full course). Methods of preparing plant material for microscopical study, with practical experience in fixing, embedding (both paraffin and celloidin), cutting, and staining.

1 hour lecture and 6 hours laboratory *Professor Roscoe*

Prerequisite: Botany 22a and b.

*42. SPECIAL TOPICS (Full course or half course). Prescribed reading, conference, and practical work in selected subjects such as Anatomy, Ecology, Mycology, Physiology, Taxonomy of Special Groups, and Biochemistry. *The Staff*

*43b. PLANT ECOLOGY (Half course). A study of the effects of climate and soil factors on plant growth leading to an interpretation of the evolution, distribution and succession of plant communities. Reference will be made

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*Courses for Advanced and Graduate students.

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to methods of ecological studies in conservation, forestry, and agriculture practices.

Second term: 2 hours lectures and 3 hours field, conference or laboratory

Professor Boll

Prerequisites: Biology 100, Botany 11b and 21 (except with special permission).

(*Not given in 1957-58; given in 1958-59.*)

44a. ECONOMIC BOTANY (Half course). The nature, origins and distribution of plants of economic importance, with some study of structure of plant parts utilized.

First term: 2 hours lectures and 3 hours laboratory

Professors Wilson and Roscoe

Prequisites: Biology 100 or Botany 11b.

(*Not given in 1957-58; given in 1958-59.*)

*45. PLANT MORPHOGENESIS (Full course). A survey of the physiological, biochemical, and genetic approaches to the experimental study of plant morphogenesis, including growth correlation, the function of plant hormones and the environmental control of plant development and morphology.

First term: 2 hours lectures and 3 hours laboratory.

Second term: 2 hours lectures and weekly seminar. *Professor Boll*

Prerequisite: Biology 100, Botany 11b, 31, and Genetics 21.

(*Not given in 1957-58; given in 1958-59.*)

HONOURS COURSE IN BOTANY

NOTE:—The Honours Course in Botany prepares students for graduate work in the departments of Genetics and Plant Pathology as well as Botany. Allowing as it does for considerable study of other biological subjects, it forms also a suitable preparation for the teaching of Biology in schools.

First year: Students must take Biology 100 as their elective in the B.Sc. program.

Second year: The general Second year requirements are satisfactory as long as Chemistry 22 and a course in Botany are included. Botany 11b and one or more of the following should be taken: Botany 21 or 22a and 22b, or 23a and 23b. The Arts subject is optional.

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*Courses for Advanced and Graduate students.

Third year: Botany 21, 22a and 22b, or 23a and 23b, and 31 must be included if not already taken. Additional courses are to be selected from cognate fields with the advice of the Chairman of the Department.

Fourth year: Three of the remaining Botany courses are required, together with two other courses selected with the approval of the Chairman of the Department.

CONTINUATION COURSES IN BOTANY

Second year: Botany 22a and 11b, or 21, or 22a and 22b, or 23a and 23b

Third year: Botany 11b to 45

Fourth year: Botany 11b to 45

Biology 100 (or its equivalent) is prerequisite to all courses in Botany.

GENERAL HONOURS IN BIOLOGICAL SCIENCES

Students who desire a planned course of study of plants and animals should consult the program drawn up for "General Honours in Biological Sciences", page 1026.

CHEMISTRY

Professors	C. A. WINKLER
	W. H. HATCHER
	C. B. PURVES
Associate Professors	J. H. MENNIE
	R. V. V. NICHOLLS
	A. S. ROSS
	A. TAURINS
	L. YAFFE
Assistant Professors	R. K. HOLCOMB
	H. I. SCHIFF
	A. SEHON
Lecturers	J. T. EDWARD
	M. ONYSZCHUK
Sessional Lecturer	R. F. ROBERTSON
Honorary Lecturer	J. H. ROSS
Research Associates	D. A. I. GORING
	W. A. MUELLER
	S. G. MASON
	A. A. ROBERTSON
	H. T. K. RUCK
	T. TIMELL

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11. (Fac. Eng. 902) GENERAL CHEMISTRY (Full course). A general survey of Inorganic Chemistry. This includes Atomic and Kinetic-Molecular theory, the theory of Ionization, with elementary examples of ionic equilibrium, rates of chemical reaction, law of mass action, oxidation and reduction, the electromotive series of the metals, the Periodic Law and the Electronic theory of Valence. The preparation and properties of the more important elements and their compounds in relation to atomic and molecular structures are emphasized.

2 lectures per week. *Professors Winkler, Nicholls, Yaffe and Holcomb*

1 tutorial per week. *Professor Holcomb and Dr. Onyszchuk*

Textbook: Jones, General Chemistry (Blakiston).

Laboratory: The lectures are supplemented by descriptive and quantitative experiments, including volumetric analysis, illustrative of the important principles and theories.

3 hours per week. *Professor Holcomb and Dr. Onyszchuk*

Prerequisites: Physics 11 and Mathematics 111 (or their equivalents) unless taken concurrently.

22. (Fac. Eng. 948) ORGANIC CHEMISTRY (ELEMENTARY).

(a) (Half course). A survey of the special characteristics of carbon and its compounds, stressing the principal families of compounds and their reactions and dealing mainly with those involving single functional groups.

2 lectures and 1 tutorial per week. *Professors Hatcher and Nicholls*

Text: Hart and Schuetz, A Short Course in Organic Chemistry (Houghton Mifflin).

(b) Half course). A commentary on the nomenclature, occurrence, preparation, properties, and uses of the more important classes of carbon compounds, and on the principles of functionality, homology and isomerism. A continuation of course (a) in greater detail, so as to include polyfunctional compounds.

2 lectures and 1 tutorial per week. *Professors Purves and Nicholls*

Text: Hart and Schuetz, A Short Course in Organic Chemistry (Houghton Mifflin).

Laboratory: Illustrative experiments.

3 hours per week. *Dr. Edward*

Laboratory Text: To be announced.

Prerequisites: Chemistry 11 and Physics 11 or their equivalents.

23. (Fac. Eng. 944) INORGANIC QUANTITATIVE ANALYSIS (ELEMENTARY) (Full course). Reactions of electrolytes in solution; ionization constant;

solubility product constant; common-ion effect. Theory of gravimetric and volumetric precipitation; theory of indicators and acid-base titrations; oxidation-reduction methods.

Laboratory: Simple gravimetric determinations; typical volumetric procedures including precipitation, neutralization, and oxidation-reduction methods. All samples are solids which must be weighed and brought into solution by the student.

1 lecture and 6 hours laboratory per week. *Professor Mennie*

Text: Kolthoff and Sandell, Quantitative Inorganic Analysis (Macmillan).

Prerequisite: Chemistry 11.

24. PHYSICAL CHEMISTRY (ELEMENTARY) (Full course). Fundamental physico-chemical topics including states of matter, equilibria, electrochemical phenomena, chemical kinetics, thermodynamics.

2 lectures per week. *Professor Winkler*

1 tutorial per week

Text: Glasstone, Elements of Physical Chemistry (Van Nostrand)

Prerequisites: Chemistry 11, Physics 11, Maths 224 (or equivalent) unless taken concurrently.

24L. PHYSICAL CHEMISTRY LABORATORY (ELEMENTARY) (Half course). Experiments and problems to illustrate physico-chemical principles and provide practice in handling experimental data and dimensional units.

3 hours laboratory per week *Professor A. S. Ross*

Text: Crockford and Nowell, Laboratory Manual of Physical Chemistry (Wiley).

References: Babor and Thiessen, How to Solve Problems in Physical Chemistry (Crowell).

27. (Fac. Eng. 942) INORGANIC QUALITATIVE ANALYSIS (ELEMENTARY) (Half course). Theory of formation and dissolution of precipitates; complex-ions; amphoteric electrolytes; hydrolysis; etc.

Laboratory: Systematic separation and identification of the common ions.

1 lecture and 3 hours laboratory per week. *Professor Holcomb*

Text: Curtman, Semi-micro Qualitative Chemical Analysis (Macmillan).

Prerequisite: Chemistry 23 or 73, unless taken concurrently.

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31. ATOMIC STRUCTURE AND VALENCE THEORIES (Full course).

2 lectures per week *Professor Mennie*

Prerequisite: Chemistry 11, Physics 11, Mathematics 224 or 225.

32. (Fac. Eng. 962) ORGANIC CHEMISTRY (ADVANCED) (Full course). A course in descriptive organic chemistry at an advanced level. It develops and extends the material presented in Courses 22a and b. Special consideration is given to the following topics: polyfunctional compounds, aromatic substances, heterocyclic compounds, terpenes, carbohydrates, fats and peptides.

2 lectures per week *Professor Nicholls*

Text: Wertheim, Textbook of Organic Chemistry, 3rd ed. (McGraw-Hill).

Prerequisite: Chemistry 22.

32L. ORGANIC CHEMISTRY LABORATORY (ADVANCED) (Half course).

6 hours per week. *Professor Nicholls*

Laboratory Text: Cheronis, Semi-micro and Macro Organic Chemistry (Crowell).

33. INORGANIC QUANTITATIVE ANALYSIS (ADVANCED) (Full course). Introduction to systematic quantitative analysis; buffer action and its applications in analytical chemistry; theory of electrolytic analysis; etc.

1 lecture per week. *Professor Mennie*

Laboratory: Systematic analysis of complex materials such as limestone, brass, etc.

6 hours per week. *Professor Mennie*

Text: Kolthoff and Sandell, Quantitative Inorganic Analysis (Macmillan).

Prerequisite: Chemistry 23 and 27.

34. (Fac. Eng. 972) KINETIC THEORY (Half course). Kinetic theory of gases; mathematical relations for molecular velocity, collision frequency, viscosity, thermal conductivity, diffusion, etc.; imperfect gases.

1 lecture per week. *Professor A. S. Ross*

References: Jeans, Introduction to Kinetic Theory of Gases (Cambridge University Press); Glasstone, Textbook of Physical Chemistry 2nd ed. (Van Nostrand).

Prerequisites: Chemistry 24, Mathematics 224 or 225.

34L. (Fac. Eng. 968) PHYSICAL CHEMISTRY LABORATORY (INTERMEDIATE). (Half course). Simple physico-chemical methods of investigating kinetic and thermodynamic properties of gases, liquids and solutions.

3 hours per week. *Professor A. S. Ross*

Text: Daniels, Matthews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

References: Livingston, Physico Chemical Experiments (Macmillan); Palmer, Experimental Physical Chemistry (Cambridge).

Prerequisites: Chemistry 24, 24L.

35. (Fac. Eng. 964) CHEMICAL THERMODYNAMICS (Full course). First and second laws, entropy, free energy, fugacity and activity, partial molal quantities.

2 lectures per week. *Dr. Robertson*

Texts: Klotz, Chemical Thermodynamics (Prentice-Hall); Lewis and Randall, Thermodynamics (McGraw-Hill).

References: Paul, Principles of Chemical Thermodynamics (McGraw-Hill).

40. (Fac. Eng. 966) CHEMISTRY AND TECHNOLOGY OF HIGH POLYMERS (Half course). Organic (carbon) and inorganic (silicon) polymers; nature of polymeric molecules; relationship between molecular structure and physical, chemical, and mechanical properties; experimental methods for controlling and determining the structures of polymers; properties of commercially available materials; methods of fabrication.

1 lecture per week. *Professor Nicholls*

Prerequisites: Chemistry 22 and 32 (the latter course may be taken concurrently).

41. INORGANIC CHEMISTRY (Full course). Descriptive inorganic chemistry based on the Periodic Table.

2 lectures per week. *Professor Mennie*

Prerequisite: Chemistry 31.

42. STEREOCHEMISTRY AND REACTION MECHANISMS (Full course). Optical and geometrical isomerism; Walden inversion; steric hindrance; molecular conformation; reaction mechanisms.

2 lectures per week. *Dr. Edward*

References: Klyne, Progress in Stereochemistry (Butterworth); Alexander, Ionic Organic Reactions (Wiley); Hines, Physical Organic Chemistry (McGraw-Hill).

Prerequisite: Chemistry 24 and 32.

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42L. ORGANIC QUALITATIVE ANALYSIS LABORATORY (Half course). For Honours Chemistry students only. Identification and separation of mixtures of organic compounds.

First term: 9 hours per week. *Dr. Edward*

Laboratory Text: Shriner, Fuson and Curtin, The Systematic Identification of Organic Compounds, 4th ed. 1956 (Wiley).

Prerequisite: Chemistry 32L.

43. INORGANIC QUANTITATIVE ANALYSIS (Half course). For Honours Chemistry students only. Special methods of quantitative analysis; colorimetric analysis; colorimetric and potentiometric pH measurement; potentiometric and conductometric titrations; polarography, etc.

First term: 1 lecture per week.

Second term: 6 hours laboratory per week. *Professor Mennie*

Texts: Kolthoff and Sandell, Quantitative Inorganic Analysis. (Macmillan); Kolthoff and Laitinen, pH and Electro-titrations (Wiley).

44. (Fac. Eng. 982) CHEMICAL KINETICS (Half course). Rates of homogenous and heterogeneous reactions; activation energy; theories of reaction mechanisms.

1 lecture per week. *Dr. Sehon*

Texts: Laidler, Chemical Kinetics (McGraw-Hill); Glasstone, Textbook of Physical Chemistry (Van Nostrand).

References: Frost and Pearson, Kinetics and Mechanism (Wiley); Hinshelwood, Kinetics of Chemical Change (Oxford); Trotman-Dickenson, Gas Kinetics (Butterworth).

Prerequisites: Chemistry 34 and 35.

44L. PHYSICAL CHEMISTRY LABORATORY (ADVANCED) (Full course). More advanced physico-chemical methods of investigating kinetic and thermodynamic properties of gases, liquids, solutions, and colloids.

6 hours per week. *Professor A. S. Ross*

Text: Daniels, Mathews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

References: Weissberger, Techniques of Organic Chemistry, Vol. I, Physical Methods, Vol. IV, Distillation, Vol. VIII, Investigation of Rates and Mechanisms of Reactions (Interscience); Reilly and Rae, Physico-Chemical Methods (Van Nostrand).

Prerequisites: Chemistry 34, 34L and 35.

45. CHEMICAL THERMODYNAMICS (ADVANCED) (Full course). For Honours Chemistry students only.

2 lectures per week.

1 hour problems alternate weeks. *Professor Schiff*

References: Sillén, Lange, and Gabrielson, Problems in Physical Chemistry (Prentice-Hall); Lewis and Randall, Thermodynamics (McGraw-Hill); Klotz, Chemical Thermodynamics (Prentice-Hall); Paul, Principles of Chemical Thermodynamics (McGraw-Hill); Dole, Introduction to Statistical Thermodynamics (Prentice-Hall).

Prerequisite: Chemistry 35.

46. (Fac. Eng. 986). COLLOID CHEMISTRY (Half course). Descriptive, thermodynamic and kinetic treatment of properties of surfaces, sols, emulsions, gels.

1 lecture per week. *Dr. Robertson*

References: Weiser, Colloid Chemistry (Wiley); Adam, Physics and Chemistry of Surfaces (Oxford); Brunauer, Adsorption of Gases and Vapors, Vol. I (Princeton); Alexander and Johnson, Colloid Science (Oxford); Harkins, Physical Chemistry of Surface Films (Reinhold); Jirgensons and Straumanis, Short Textbook of Colloid Chemistry (Wiley); Gregg, The Surface Chemistry of Solids (Reinhold).

Prerequisites: Chemistry 34 and 35.

47. (Fac. Eng. 988) ELECTROCHEMISTRY (Half course). Electrolytic conduction and electrolysis; Faraday's laws; specific and equivalent conductance and measurement of conductance; mobility and transport number; theory of strong electrolytes; thermodynamics of cells; electrode potentials; concentration cells; liquid junction potentials; overvoltage and polarization phenomena.

1 lecture per week. *Professor Schiff*

Text: Glasstone, Introduction to Electrochemistry (Van Nostrand). MacInnes, The Principles of Electrochemistry (Reinhold).

Prerequisites: Chemistry 34 and 35.

48. RADIOCHEMISTRY (Half course). An extra half course for Fourth year Honours students. A number of lectures will be given dealing with fundamentals of radiochemistry, radio-tracer techniques and applications. The remainder of the lectures will be devoted to special topics including isotope effects, exchange reactions, C^{14} dating technique, synthesis of the new elements, etc.

1 lecture per week. *Professor Yaffe*

Prerequisite: To be discussed between prospective student and lecturer.

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70. SCIENCE IN ECONOMIC LIFE (Full course). By virtue of its two main subdivisions, inorganic and organic, chemistry presents a vast field of service to man. In this course the important principles of industrial chemistry are presented by application to commercial processes where all their aspects are studied in relation to their economic importance.

The course is intended primarily for B.Com. students.

2 lectures per week. *Professor Hatcher*

Text: Selected readings and essays.

73. (Fac. Eng. 954) INORGANIC QUANTITATIVE ANALYSIS (ELEMENTARY) (Half course). Reactions of electrolytes in solution; ionization constant; solubility product constant; common-ion effect. Theory of gravimetric and volumetric precipitation; theory of indicators and acid-base titrations; oxidation-reduction methods.

This course is intended for students specializing in Geology.

Laboratory: Representative gravimetric and volumetric laboratory procedures.

1 lecture and 3 hours laboratory per week. *Professor Mennie*

Text: Kolthoff and Sandell, Quantitative Inorganic Analysis (Macmillan).

B.Sc. HONOURS COURSE IN CHEMISTRY

This course begins in the Second year. First year students intending to take Honours in Chemistry should consult the Department before the end of the session.

Second and Third year Honours students may make application for summer employment in the research laboratories of the department.

Prerequisites: At least good second class standing in Chemistry 11, Mathematics 111, and Physics 11 or their equivalents. It is desirable that students should have taken a course in German in the First year.

Second year: Chemistry 22, 23, 24, 24L, 27; Mathematics 224 or 225; Physics 22.

Third year: Chemistry 31, 32, 32L, 33, 34, 34L, 35; Mathematics 332; Physics 23X.

Fourth year: Chemistry 41, 42, 42L, 43b, 44, 44L, 45, 46, 47; Mathematics 447.

NOTE:—Students anticipating specialization in Chemistry are recommended to include Intermediate Mathematics in their Junior Matriculation subjects. If they enter by Senior Matriculation they should include Co-ordinate Geometry in this examination.

GENERAL COURSE STUDENTS

B.Sc.—Chemistry courses may be taken in the following years providing necessary prerequisites have been passed: *Second and Third years*, Chemistry 22 or 24, 23; *Third year*, Chemistry 24 or 22, 27; *Fourth year only* Chemistry 32, 33, 34 and 34L, 35 or other courses by special permission of the Department.

B.A. students normally are admitted to Chemistry 11 only in their Second year *after* passing Physics 11 in their First year and if they plan to take a Chemistry course in a later year.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

CLASSICS

Professor CLIVE H. CARRUTHERS (*Post-retirement*)

Associate Professors E. M. COUNSELL
PAUL F. MCCULLAGH, *Chairman*

Assistant Professors COLIN D. GORDON
GERALD R. VALLILEE

GREEK

Courses numbered 21 and above are available to General Course students in the Second, Third or Fourth year.

1. BEGINNERS' GREEK (Full course). For students who have not matriculated in Greek, the completion of this course and Greek 2 will be accepted as fulfilling the Classical Language requirement for the B.A. degree.
3 hours. *Professor Gordon*

Text: Greek through Reading (Nairn, Ginn & Co.).

2. INTERMEDIATE GREEK (Full course). Grammar, readings, and studies in Greek Literature.

Prerequisite: Greek 1, except by permission of the Chairman of the Department.
3 hours. *Mr. Vallillee*

Texts: Selections from Xenophon; prose composition.

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21. GREEK (Full course). Readings in Plato.

Prerequisite: Matriculation Greek, or Greek 2.

3 hours. *Professor Gordon*

Texts: To be announced.

22. GREEK (Full course). Homer.

3 hours. *Professor Counsell*

23. HELLENISTIC GREEK (Full course). Readings from Hellenistic authors and the New Testament. Permission of the Department must be obtained before registering for this course.

3 hours. *Professor Carruthers*

Texts: To be announced.

31. GREEK (Full course). Greek Drama.

3 hours. _____

32. GREEK (Full course). Greek Historians.

3 hours. _____

41. GREEK (Full course). Greek Orators.

3 hours. _____

42. GREEK (Full course). Greek Philosophy.

3 hours. _____

Texts: Plato, Republic (Selections); Aristotle, Ethics (Selections); Sight Translation.

For Honours courses, continuation courses and other courses in Classics see below (page 1050).

LATIN

Courses numbered 21 and above are available to General Course Students in the Second, Third or Fourth year.

1. BEGINNERS' LATIN (Full course). The completion of this course and Latin 2 will be accepted as fulfilling the Classical Language requirement for the B.A. degree. Students who have passed the McGill School Certificate examination in Latin or its equivalent are required to take Latin 11 for this purpose.

3 hours. *Members of the Department*

Text: Wilding, Latin Course for Schools, Parts I and II (Faber & Faber).

2. INTERMEDIATE LATIN (Full course).

Prerequisite: Latin 1.

3 hours. *Members of the Department*

Texts: Wilding, Latin Course for Schools, Parts II and III.

12. LATIN. First year (Full course). The completion of this course fulfils the Classical Language requirement for the B.A. degree. Reading selections, composition and sight translation.

3 hours. *Members of the Department*

Texts: To be announced.

21. LATIN (Full course). Lucretius, De rerum natura. A study of the poet's art and purpose. The poem will be read partly in the original, partly in translation.

3 hours. *Mr. Vallillee*

22. LATIN (Full course). Reading in Cicero's Letters, Catullus and Horace (odes).

3 hours. *Professor Counsell*

Texts: To be announced.

23. READINGS IN LATE AND MEDIEVAL LATIN (Full course). Permission of the Department must be obtained before registering for this course.

3 hours. *Professor Counsell*

Text: A Primer of Medieval Latin (Beeson, Scott, Foresman & Co.)

31. LATIN (Full course). Prose of the age of Cicero.

3 hours.

32. LATIN (Full course). Readings from the Bucolics and Georgics.

3 hours. *Professor Carruthers*

41. LATIN (Full course). Roman Historians.

3 hours. *Professor Carruthers*

42. LATIN (Full course). Roman Satire: Horace and Juvenal.

3 hours. *Professor Carruthers*

For Honours courses, continuation courses and other courses in Classics, see below (page 1050).

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OTHER COURSES

ANCIENT HISTORY 11.—GREEK AND ROMAN HISTORY (Full course). A general course available both to First year students and to those in the upper years. A survey of Greek and Roman history from the origins to the beginning of the Middle Ages. 3 hours. *Professor Gordon*

Text: Ancient History, C. E. Robinson (Macmillan).

ANCIENT HISTORY 21.—GREEK HISTORY (Full course). The origin, development, achievements, and decay of the Greek city-state society, from the time of Homer to Alexander the Great. Particular attention will be paid to Greek life and culture and to Greek contributions to modern civilization.

3 hours. *Professor Gordon*

Ancient History 11, though not a prerequisite, is desirable for students taking this course and Ancient History 22.

(*Not given in 1957-58.*)

ANCIENT HISTORY 22.—ROMAN HISTORY (Full course). The political and social development of the Roman state from its origins to the time of Augustus, with particular attention to the collapse of the Republic and the founding of the Principate.

3 hours. *Professor Gordon*

CLASSICS 20.—CLASSICS IN TRANSLATION (Full course). For Second, Third and Fourth year students. Each student will select, for special study, one of four fields (Epic Poetry, Drama, History, Ethical and Political Theory). The examination will be in two parts of equal value, one on the special field, the other on general knowledge.

3 hours. *Professor McCullagh*

CLASSICS 31.—COMPARATIVE GRAMMAR. For Third year Honours students (Half course).

2 hours. *Professor Carruthers*

LINGUISTICS 21.—INTRODUCTION TO THE STUDY OF LANGUAGE. Available to Second, Third, and Fourth year students (Full course). An elementary survey of human speech, its nature, origin, structure, and classification; principles of linguistic change; writing and the alphabet; universal and auxiliary languages.

3 hours. *Professor Carruthers*

HONOURS COURSES IN CLASSICS

Students will take two full courses each year both in Latin and in Greek, and, in addition, Classics 31 and Ancient History 11.

Honours in Latin or Greek may be combined with Honours in another subject, as follows:

1. **Greek and Philosophy.** Students entering without Greek must take Greek in the First year. *Second year*: two courses of Greek 21, 22, 23; Philosophy 200 and 300 (if the special field is Ethics) or Philosophy 200 and either 310 or 320 (if the special field is Systematic Philosophy). *Third year:* Greek 31 and 32; Philosophy 350 and 360. *Fourth year:* Greek 41 and 42; Philosophy 370 or 420 or 440 or 450; Philosophy 400 (if the special field is Ethics) or Philosophy 410 (if the special field is Systematic Philosophy). Additional courses must be approved by the two Departments.

2. **Latin and Philosophy.** Students will take the regular Latin course of the First year. *Second year:* two courses of Latin 21, 22, 23; Philosophy 200 and 300 (if the special field is Ethics) or Philosophy 200 and either 310 or 320 (if the special field is Systematic Philosophy). *Third year:* Latin 31 and 32; Philosophy 350 and 360. *Fourth year:* Latin 41 and 42; Philosophy 370 or 420 or 440 or 450; Philosophy 400 (if the special field is Ethics) or Philosophy 410 (if the special field is Systematic Philosophy). Additional courses must be approved by the two Departments.

3. **Latin and Spanish.** Students will take the regular Latin and Spanish courses of the First year. *Second year*: Two courses of Latin 21, 22, 23; Spanish 21 and 22; Linguistics 21. *Third year:* Latin 31 and 32; Spanish 31 and 33. *Fourth year:* Latin 41 and 42; Spanish 41 and 42. An additional course may be required in the Third and the Fourth year.

4. **Latin and English.** See description under the Department of English.

5. **Greek and English.** See description under the Department of English.

6. **Latin and French.** See description under the Department of Romance Languages.

7. **Latin and German.** See description under the Department of German.

8. **Greek and German.** See description under the Department of German.

All Honours courses must be approved by the Department.

CONTINUATION COURSES

Students offering Latin (or Greek) as a Continuation subject will take one course in their Second, Third, and Fourth years.

GRADUATE COURSES IN CLASSICS

See the Announcement of the Faculty of Graduate Studies and Research.

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ECONOMICS AND POLITICAL SCIENCE

Professors	D. B. Marsh, *Chairman* E. F. Beach G. E. G. Catlin F. C. James H. D. Woods D. McC. Wright
Associate Professors	Irving Brecher K. B. Callard J. T. Culliton M. C. Kemp J. R. Mallory J. C. Weldon
Assistant Professors	Michael Brecher S. J. Frankel R. C. Pratt
Lecturers	(1956/57) A. Asimakopulos (1956/57) L. Nicolopoulos

With the assistance of the following members of the School of Commerce: Professor E. W. Kierans, Assistant Professor D. E. Armstrong.

ECONOMICS COURSES

100. ECONOMIC HISTORY. First year (Full course). A survey of the evolution of economic institutions from the ancient empires in Sumaria and Egypt to the outbreak of war in 1939. The course reviews the continuity of economic activities from the early empires through Greece and Rome; the manorial organization of the early Middle Ages; the revival of towns, commerce, and financial institutions; the widening of geographical and intellectual horizons; the industrial revolution and colonization; the economy of the 19th century; the first world war and the breakdown of the war economy after 1931.

3 hours. *Professor James*

211H. INTRODUCTION TO ECONOMIC THEORY. Second year (Full course). An introduction to economic analysis covering general price theory, the theory of the firm, theory of production and distribution, and general equilibrium theory.

3 hours. *Professor Beach*

This course is prerequisite to all Honours courses in Economics.

211G. ELEMENTS OF POLITICAL ECONOMY. Second year (Full course). Production, distribution, and exchange of goods; money and banking; price; international trade and foreign exchange; labour and trade unions; related topics.

3 hours. *Professor Culliton*

This course is prerequisite to all courses in Economics except Economics 100 and 361.

211C. PRINCIPLES OF ECONOMICS. Second year (Full course). An introduction to the general principles of economics, covering monetary systems, price levels, national income, production, competition, and international trade.

3 hours. *Professor Wright*

This course is prerequisite to all courses in Economics except Economics 100 and 361.

300. ECONOMIC HISTORY OF MODERN BRITAIN. Third or Fourth year (Full course). Traces the course of British economic development from the breakdown of the medieval system to the present day. Particular attention is paid to the influence on British history of population movements; the introduction of new techniques in agriculture, transportation, industry, and finance; and the economic development of overseas areas.

3 hours.

Prerequisites: Either Economics 100 or History 1.

311. HISTORY OF ECONOMIC THOUGHT. Third or Fourth year (Full course). A critical study of the writings of the great economists, with particular reference to the period from Adam Smith to the present day.

For Honours students only.

3 hours. *Professor Marsh*

321G. MONEY AND BANKING. Third year (Full course). Theory and practice of money and credit; organization and operations of financial institutions; monetary policy; concept and function of money; early history of credit institutions; the crisis of 1825, the Peel Bank Act, and the development of the British financial system; the National Banking System in U.S. and the evolution of the Federal Reserve System; early development of Canadian banking; effects of World Wars I and II and of the Great Depression on U.S., U.K., and Canadian banking; monetary policy and economic fluctuations.

3 hours. *Professor Weldon*

321H. MONEY AND BANKING. Third year (Full Course).

For Honours Students.

3 hours. *Professor Marsh*

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322b. ECONOMIC DYNAMICS. Third and Fourth year (Half course). An examination of the methodological problems of model building. Covers formation of expectations, planning under uncertainty, aggregation problem, period analysis, solution of simple difference and differential equations. Special consideration is given to the monetary aspects of macro-models.

Second term: 3 hours. *Professor Kemp*

Prerequisite: First term of Economics 321.

331. ECONOMIC POLICY. Third and Fourth year (Full course). A study of the economic policy of governments, with particular regard to corporations and forms of business enterprise, regulation of markets and competition, monopoly problems, public utilities, and governmental enterprises, fiscal policy, the maintenance of full employment, and the prevention of inflation.

3 hours. *Professor Irving Brecher*

335b. GOVERNMENT AND BUSINESS. Third or Fourth year (Half course). A study of the relationship of government to the regulation of business with particular emphasis on the problem of maintaining competitive markets. Readings will cover leading law cases, as well as relevant economic literature. See also Political Science 335a. These two courses are normally intended to be taken together.

Second term: 3 hours. *Professor Irving Brecher*

Prerequisite: Political Science 335a or permission of the Instructor.

341a. LABOUR ECONOMICS. Third year (Half course). The origin of labour problems in modern industrial organization; their interpretation by economic theory; the theory of wages and employment.

First term: 3 hours. *Professor Woods*

341b. LABOUR INSTITUTIONS. Third year (Half course). The course is designed to supplement the course in labour problems but may be taken separately. It deals with trade unions, co-operative societies, credit unions, labour political movements, labour legislation, and governmental organization in the labour field. Students are advised to take Economics 341a.

Second term: 3 hours. *Professor Woods*

351. CANADA: GEOGRAPHIC, INDUSTRIAL, AND ECONOMIC PROBLEMS. Third year (Full course). This course consists of discussions on current economic and political problems in Canada with special emphasis on their origins, causes, and possible solutions, e.g., the wheat problem, the coal problem, etc.

3 hours. *Professor Culliton*

361. ECONOMIC STATISTICS. Third year (Full course). Description of frequency distributions including averages, dispersion, and skewness. Charting and analysis of time series: trend lines, seasonal indexes, and measurement of cyclical fluctuations. Index numbers. Simple linear correlation. An introduction to Statistical Inference covering the following topics; elementary distributions, sampling, tests of statistical hypotheses, and estimation of population parameters.

2 hours lecture, 2 hours laboratory. *Professor Kemp*

Prerequisite: Mathematics 111; Economics 211 is not a prerequisite.

363a. ECONOMETRICS I. Fourth year (Half course). An elementary mathematical treatment of basic economic theory. Attention is chiefly given to technique.

First term: 3 hours. *Professor Kemp*

371b. CAPITALISM, SOCIALISM AND DEMOCRACY. Third or Fourth year (Half course). A discussion of the inter-relationships of economic and political organization as parts of the pattern of a democratic culture. Readings will include selections from Schumpeter, Hayek, Karl Marx, Wright, Keynes, the American Constitutionalists, and others.

Second term: 3 hours. *Professor Wright*

This course may be taken for continuation in Political Science.

400. THE ECONOMIC HISTORY OF NORTH AMERICA. Third or Fourth year (Full course). Deals primarily with Canada and the influence of the United States on Canadian economic development. The cod fisheries; fur trade, settlement, and the struggle for the continent; breakup of the first British Empire; Confederation; commercial policy; railways; twentieth century industries.

3 hours.

411. ADVANCED ECONOMIC THEORY. Fourth year (Full course). An attempt to formulate the theoretic problems on the frontiers of the science and to study attacks on these problems in the recent literature.

For Honours students only.

3 hours. *Professors Beach and Wright*

Prerequisite: Economics 311.

412a. ECONOMIC ANALYSIS. Third or Fourth year (Half course). Analysis of the problems of the economy with special reference to Canada: the national accounts; the eclectic theory of the business cycle; a study of Canadian monetary and fiscal policy; Canadian trade agreements.

First term: 3 hours. *Professor Armstrong*

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412b. ECONOMIC ANALYSIS. Third or Fourth year (Half course). Analysis of the economic problems of the firm: the basis of the demand curve—consumption by the household; entrepreneurial determination of market demand; types of markets and the price-output behaviour of firms in the different types of markets—agricultural markets, monopolistic markets, etc.; control of monopoly in Canada; special problems of the firm—advertising, forecasting demands, unionization and the supply of labour, location of industry, etc.

Second term: 3 hours. *Professor Armstrong*

421. PUBLIC FINANCE. Third or Fourth year (Full course). A seminar course divided into three parts. 1. The theory of public finance. 2. A study of Canadian public finance at the federal, provincial and municipal levels. 3. Special problems of Canadian public finance. Emphasis will be placed on Part 3, which will include consideration of such topics as tax-rental agreements, regional redistribution of income by provincial and federal governments, the effects of the Canadian tax structure on business, and the problem of stabilizing employment in the Canadian federation.

3 hours. *Professor Armstrong*

422a. ECONOMIC FLUCTUATIONS. Fourth year. Analysis of the nature and causes of fluctuations in income, employment, prices, production, etc. The three types of cycle: Kitchin, Juglar, and Kondratieff; secular stagnation, the concept of national income; major components; fundamental savings-investment and monetary flow equations; the multiplier; the relation; interactions of multiplier and relation; the Schumpeter model; the Kalecki-Kaldor model; the Hayek model; the Keynesian system; Hansen and the doctrine of economic maturity.

For Honours students only.

First term: 3 hours. *Professor Armstrong*

Prerequisite: Economics 321.

422b. FISCAL POLICY. Fourth year (Half course). This course is concerned with actual and proposed economic policies for the maintenance of full employment without inflation. Nature of the employment problem; policy implications of various explanations of economic fluctuations; policy implications of "long wave" and "stagnation" theories; policies to stimulate private investment; policies to increase consumer spending; public investment policy; monetary vs. fiscal policy; tax reduction vs. increased expenditures; foreign trade policy and employment; debt management.

For Honours students only

Second term: 3 hours. *Professor Irving Brecher*

Prerequisite: Economics 422a.

424. INTERNATIONAL TRADE AND FINANCE. Third and Fourth year (Full course). 1. Volume and composition of international trade; international commodity markets; international money and capital markets; dynamics of trade and investment. 2. International analysis and international trade; international income flows and the mechanism of adjustment; international income flows and the level of economic activity; international trade and the international allocation of resources; the distribution of income under free and restricted trade; the gains from free and restricted trade; the international spread of income changes. 3. Ends of international economic policy; post-war recovery programmes; international monetary funds, and international monetary and exchange-rate policy; tariffs, trade agreements, and the struggle for multilateralism; the problems and possibilities of international investment: direct and portfolio; Export-Import Bank; International Bank; future of private investment and multilateral trade.

3 hours. *Professor Weldon*

Prerequisite: Economics 321.

425a. CORPORATION FINANCE. Fourth year (Half course). The capital supply of corporations; money and capital markets; concept and short history of business corporations, their changed structure and increased importance; the instrumentalities of corporation finance (bonds, stocks, hybrid forms and trust certificates); holding and investment companies; corporate finance in action (promotion, management, expansion, decline, and failure); security markets and their function, organization, operation, and control.

First term: 3 hours. *Professor Kierans*

425b. INVESTMENT ANALYSIS. Fourth year (Half course). Role of investment; the investment outlets (government bonds, corporate securities, mortgages, real estate) as seen by the buyer; the concepts of income, risk, value, and appreciation; analysis of specific investment outlets; market behaviour and its analysis; investment methods.

Second term: 3 hours. *Professor Kierans*

431. INTERNATIONAL COMMODITY CONTROLS. Fourth year (Full course). This course includes, as well as international commodity controls, the wider question of monopolies, cartels, patents, and monopoly legislation. It is conducted along seminar lines.

3 hours *Professor Culliton*

432. TRANSPORTATION. Fourth year (Full course). History and development of the Canadian transportation system; economic characteristics of the various transportation media; comparative analysis of cost and rate structures; problems of regulation and control.

3 hours. *Professor Culliton*

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441. INDUSTRIAL RELATIONS. Third and Fourth year (Full course). An introduction to the problems of employer-employee relations, including the management of personnel, legislation, employee organizations, and the State function and public interest in industrial relations. Plant visits and reports are an integral part of the course.

3 hours *Professor Woods*

442. COLLECTIVE BARGAINING. Fourth year (Full course). A seminar course involving an intensive study of collective bargaining institutions and techniques, grievance procedures, law and the state machinery for industrial relations. The course covers trade unionism, employers associations, collective agreements, negotiations, the content of such agreements, conciliation, and arbitration. Experience in other industrial countries is also examined.

Students are admitted only by permission of the instructor.

3 hours *Professor Woods*

461b. ECONOMETRICS II. Fourth year (Half course). A development of the mathematical aspects of econometrics. Attention is chiefly given to selections from the recent literature.

Second term: 3 hours. *Professor Kemp*

Prerequisite: Economics 363a or equivalent.

462a. STATISTICAL INFERENCE. Fourth year (Half course). A continuation of the statistical theory of sampling, reliability, estimation, and testing of hypotheses developed in Economics 361.

3 hours.

Prerequisite: Economics 361.

POLITICAL SCIENCE COURSES

Political Science 211G, 211H or 212, and either History 100 or Economics 100, are prerequisite to all Third and Fourth year courses in Political Science. Honours students will take Political Science 211H and students continuing in Political Science will normally take 211G.

211G. COMPARATIVE GOVERNMENT. Second year (Full course). An introduction to the theory and practice of modern govermment. This involves a comparative study of the institutions and experience of contemporary constitutional and dictatorial states.

2 hours and conference. *Professor Callard*

211H. COMPARATIVE GOVERNMENT. Second year (Full course).
For Honours students.
3 hours. *Professor Frankel*

212. INTRODUCTION TO POLITICS. Second year (Full course). An analysis of the basic concepts of Political Science, with illustrations drawn mainly from the experience of constitutional and dictatorial government as practised in certain modern states. In the secnod term, the emphasis is upon international relations.
3 hours. *Professor Catlin*

311. HISTORY OF POLITICAL THEORY. Third year (Full course). A survey of the development of Western political thought from ancient Greece down to the present.
3 hours. *Professor Pratt*

322. PARLIAMENTARY GOVERNMENT IN THE BRITISH COMMONWEALTH. Third or Fourth year (Full course). The structure of parliamentary and cabinet government in the United Kingdom, and a discussion of its modifications to meet the requirements of the other autonomous countries of the Commonwealth; the machinery of Commonwealth co-operation.
3 hours. *Professors Mallory and Pratt*

323. POLITICS AND GOVERNMENT IN ASIA. Third or Fourth year (Full course). A consideration of the origins and development of the political systems which have emerged in Asia since the end of World War II, with particular attention to India, Pakistan, China and Japan.
3 hours. *Professor Michael Brecher*

324a. COLONIALISM. Third or Fourth year (Half course). A study of the theory and practice of colonialism, the government and politics of contemporary colonial territories, their significance internationally, and the experience and the problems of introducing democratic institutions of self-government in these territories.
First term: 3 hours. *Professor Pratt*

325b. THE GOVERNMENT OF THE UNITED STATES. Third or Fourth year (Half course). A study of the Constitution, the political institutions, and the working of Congressional Government in the United States.
Second term: 3 hours. *Professor Callard*

335a. POLITICAL ASPECTS OF ECONOMIC POLICY. Third or Fourth year (Half course). A discussion of the political framework of ideas and institutions within which economic policy in a constitutional state must be carried out. The changing concept of property; political power and economic power; government and the regulation and operation of economic activity.

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See also Economics 335b. These two courses are normally intended to be taken together.

First term: 3 hours. *Professor Callard*

341. PUBLIC ADMINISTRATION. Third or Fourth year (Full course). A study of the machinery of government, with examples drawn mainly from Canada, the United States, and the United Kingdom. The increasing size and complexity of modern government; the problem of bureaucracy; central control of policy; the civil service; other agencies of government, regulatory and commercial; the legislature and the administration; the courts and the administration; public control and accountability.

2 hours and conference.

(*Not given in 1957-58*)

343a. MUNICIPAL GOVERNMENT. Third or Fourth year (Half course). A study of systems of local government in Great Britain, the United States and Canada, and an examination of municipal problems of law, politics, and finance.

First term: 3 hours. *Professor Callard*

344. INTERNATIONAL RELATIONS. Third or Fourth year (Full course). A study of the theory and practice of international politics and organization. The course will deal with the nature, forms and components of state power; balance of power; objectives and motivations of foreign policy; nationalism; imperialism; international morality; international law; diplomacy; structure and dynamics of the League of Nations and the United Nations; selected problems in contemporary international politics.

3 hours. *Professor Michael Brecher*

351. GOVERNMENT OF CANADA. Third or Fourth year (Full course). The working of parliamentary federations in Canada. The problems of federal-provincial relations; the structure of parliamentary government; the evolution of national status.

3 hours. *Professor Mallory*

353b. FEDERALISM. Third or Fourth year (Half course). An examination of the characteristics of federal systems and the application of the techniques of federal government to multicultural and other nonhomogeneous countries. Particular attention will be paid to the factors of race, religion, language, and geography in creating the conditions which make federalism desirable and to such problems as the division of legislative power, judicial review, and constitutional amendment.

Second term: 3 hours. *Professor Mallory*

Prerequisites: Political Science 211 H or 211 G and Political Science 351.

355a. POLITICAL PARTIES. Third or Fourth year (Half course). A comparative study of the organization, rôle and functioning of political parties and the party system in constitutional states.

First term: 3 hours. *Professor Frankel*

411a. ADVANCED POLITICAL THEORY. Fourth year (Half course). An advanced course mainly for Honours students. The course will deal with selected topics in recent political theory. In particular it will deal more intensively with certain problems of contemporary importance, such as modern totalitarian theory, which are necessarily treated only briefly in Political Science 311.

First term: 3 hours. *Professor Catlin*

Prerequisites: Political Science 211 and 311.

412b. A STUDY OF BOLSHEVISM. Fourth year (Half course). An examination of the ideological background of Soviet Communism and its role in the process of gaining and maintaining political power. Political thought from Marx to Mao Tse Tung; the Leninist concept of party and revolution; the Russian and Chinese revolutions; government and politics in the U.S.S.R.

Second term: 3 hours. *Professor Frankel*

Prerequisites: Political Science 311 *or* Economics 371b.

Note:—Philosophy 400, Constitutional Law, and Jurisprudence may be offered, by permission of the Department, as courses in Political Science.

CONTINUATION COURSES

Economics and Political Science are regarded as separate disciplines for continuation purposes, with the exception of Political Science 335a, Economics 335b, and Economics 371b.

HONOURS COURSES

The following is the basic programme for students wishing to take full Honours in Economics and Political Science:

Second year: Economics 211H, Political Science 211H, and three elective courses outside the Department but subject to its approval.

Third year: Economics 311, Political Science 311, one additional course in the Department and another approved course outside.

Fourth year: Three approved courses within the Department, one of which must be in the minor field, and one approved course outside.

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Courses in the Third and Fourth years will follow a logical sequence and should lead to some specialization in a particular area of the major field. Honours students must consult their departmental advisers about the proper planning of their courses.

JOINT HONOURS

Joint Honours with other Departments may be taken as follows:

(a) Economics and History

First year: Economics 100 *or* History 100 and four other courses as required by Faculty.

Second year: Economics 211H, History 200, *either* History 205 *or* History 210, *either* Political Science 211H *or* Geography 211, one other approved outside course.

Third year: Economics 311, *either* Economics 321 *or* Economics 331, History 305, History 310.

Fourth year: Economics 324, *either* Economics 421 *or* Economics 335a and 371b, History 405, History 420.

(b) Economics and Mathematics

Second year: Two approved full courses in the Department of Economics and Political Science together with Mathematics 225, 226, and one approved outside course.

Third year: Two approved full courses in Economics together with Mathematics 227, 333.

Fourth year: Two approved full courses in Economics together with Mathematics 339 and any other approved elective course which may be, if desired, a second Mathematics course selected with the approval of the Chairman of the Mathematics Department.

(c) Economics and Philosophy

First year: Students contemplating joint Honours in Economics and Philosophy should consult the two departments in the choice of first year electives.

Second year: Economics 211H, Philosophy 300, Philosophy 310, and two approved outside courses.

Third year: Economics 311, *either* Philosophy 350 *or* Philosophy 360, and two other courses to be chosen in consultation with the two departments, with a view to Fourth year specialization.

Fourth year: Economics 411, *either* Philosophy 350 *or* Philosophy 360 (whichever was not taken in the Third year), one other course in Economics in an approved field of specialization, and one other approved course.

Joint Honours Comprehensives: At the end of the Fourth year, students will sit a comprehensive examination consisting of the following papers:

Ethics and Political Philosophy
The History of Philosophy
Major paper in Economics
Special subject in Economics.

Ordinary course examinations in the two departments are replaced by these four papers.

(d) History and Political Science (see page 1101)

(e) Philosophy and Political Science (see page 1119)

THE WRITTEN COMPREHENSIVE EXAMINATIONS FOR HONOURS B.A.

Examinations at the conclusion of the Fourth year will normally be as follows:

(a) *A Major paper:* This will be a two-part examination. Part I (3 hours) will be the course examination(s) on the Major subject taken in the Fourth year (e.g., Economics 411, Political Science 411a, etc.). Part II (2) hours) will be of a more general and comprehensive character and will attempt to test the student's ability to integrate his knowledge of the Major field. It will be based, to a large extent, on the subject matter of Economics 211H and 311 for Economics students, or, for Political Science students, Political Science 211H and 311.

(b) *A Minor paper:* This will be the regular course examination on the subject in the Minor field taken during the Fourth year.

(c) *A Special paper:* This examination will cover the field chosen by the student for specialization and will be based on the sequence of courses in this field and on special reading and research. Examples of fields for specialization are, in Economics, Economic Theory, Labour Economics, International Trade, etc., and, in Political Science, Political Theory, Public Administration, International Relations, etc.

Note: The grade or grades assigned to the course or courses constituting the Major subject will be based on the results of both the course examination(s) and the comprehensive part of the Major paper (e.g., the grade for Political Science 411a will include a weight for the results of the comprehensive part of the final Major paper).

There are no further examination requirements in the three courses normally taken in the Department during the Fourth year. It should be noted that the student is responsible for the regular examination in

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the course taken outside of the Department, or in the fourth course which is taken within the Department in lieu of an outside course. Thus, the Honours student writes four examinations in all at the end of his final year.

In preparation for the Comprehensive Examinations, course work will be supplemented during the Third and Fourth years by tutorial instruction.

Honours students in Economics or Political Science in the School of Commerce should consult the School of Commerce Announcement.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

EDUCATION

Professor — C. E. SMITH, *Chairman*

COURSE OFFERED AS A SUBJECT FOR THE B.A. OR B.Sc. DEGREE

EDUCATION 200: THE HISTORY OF EDUCATION IN WESTERN SOCIETY

The history of education in Europe and America, including a comparative study of the systems of public education in the countries of Western Europe, the United States, and Canada.

3 hours a week. *Professor Smith*

For courses in Education offered for the B.Ed. degree; for courses leading to the High School Diploma; and for Regulations of the Protestant Committee governing the award of teaching diplomas; see the separate Announcement of the Institute of Education.

ENGLISH

Professors — RALPH S. WALKER, *Chairman*
H. G. FILES
JOYCE HEMLOW

Associate Professor — HUGH MACLENNAN

Assistant Professors — CONSTANCE BERESFORD-HOWE
LOUIS DUDEK
KATHLEEN M. FRICKER
SLAVA KLIMA
ALEC LUCAS
ARCHIBALD E. MALLOCH
GORDON F. SLEIGH

Lecturers

WILLIAM T. BOOTH
CURTIS D. CECIL
ALEXANDER M. KINGHORN
MARTIN PUHVEL
MARGERY E. SIMPSON
HUGH D. SPROULE
DONALD WALLACE

Note:—In electing courses, the student should bear in mind that (1) some of the English courses cannot be offered in the current session, but will normally be offered in the next session; and (2) some courses admit only a limited number of students, or require special qualifications for admission. A student who wishes to elect a course but, after examining the Announcement, is uncertain of his eligibility, should consult the instructor responsible for the course.

COURSES FOR STUDENTS IN THE FIRST YEAR

100. ENGLISH LITERATURE (Full course). A selection of major works in the English literary tradition from medieval to modern times.

3 hours (2 lectures and 1 tutorial meeting).

Professor Walker and members of the Department

100C. ENGLISH COMPOSITION. See p. 1020. At the beginning of the session students will be required to take a test in Composition. Those who achieve a high standard in this test may be exempted from English 100C. Those who, while not thus exempted, attain a high standard in the work of the class may be exempted from the final examination.

1 hour weekly throughout the session.

Professor Fricker and members of the Department

REGISTRATION IN ENGLISH 100 AND 100C: It is important to register at the start of the session. Classes missed through late registration are counted as absences: no student whose unexcused absences exceed one eighth of the number of meetings in the Course is permitted to write the final Examination. Assignments unfulfilled because of late registration cannot be made up: marks obtained for assignments provide 50% of the final grade for the course.

Those required to repeat the Course are subject to all the regulations governing First year students.

CONDITIONED STANDING: Students conditioned in English 100 and 100c need not attend classes. Special Supplemental Examinations for those in the first year of conditioned standing will be set in April and September on the 100 Course work of the previous year. If his conditioned

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standing is extended beyond one year, a student must write the 100 Course Examination on the work of the current year.

All students of the Second and subsequent years, who wish to take part in the work of a Course, must register for it at the start of the session.

150. ELEMENTARY ENGLISH COMPOSITION. This course is especially designed to help students whose native tongue is not English and who have particular difficulty in writing correct, idiomatic English.

First year students whose native tongue is not English, and whose proficiency in the use of English is not such, in the opinion of the Department, as to enable them to profit adequately from Course 100C, will be directed to substitute Course 150 for Course 100C. First year students not so directed, and students in other years, may, with the permission of the instructor, elect this course, *but they cannot gain from it any credit towards a degree.*

2 hours weekly throughout the session.

Professors Fricker and Klima

COURSES OPEN TO STUDENTS IN THE SECOND YEAR

200. SHAKESPEARE (Full course).

3 hours. *Professor Walker*

220. ENGLISH LITERATURE IN THE EIGHTEENTH CENTURY (Full course).

3 hours. *Professor Files*

(*Not given in 1957-58*)

230. ENGLISH LITERATURE IN THE NINETEENTH CENTURY (Full course). For Second year students. Recommended as a suitable continuation course.

3 hours. *Professor Sleigh*

240. AMERICAN LITERATURE (Full course). From the literary beginnings to the end of the nineteenth century.

(*Given in 1957-58, but not in 1958-59*)

250. CREATIVE WRITING—INTERMEDIATE (Full course).

Hours to be arranged. *Professor Beresford-Howe*

Registration is limited. Students must have the instructor's permission to take this course.

260. DRAMATIC PRODUCTION (Full course). A study of drama from the points of view of director, actor, and designer. The first term is devoted to

discussing and attempting to solve the various problems involved in preparing a given play or plays for production. In the second term the course includes a history of theatrical styles and conventions. The student is required to present weekly exercises throughout both terms.

3 hours of lectures, and 3 hours devoted to the preparation of exercises.

(*Not given in 1957-58*)

290. THE GREAT WRITINGS OF EUROPE (Full course). For 1957-58 the period studied will be from 1750 to 1850. Most of the works studied are available in translation.

2 lectures and 1 conference weekly. *Professor Dudek*

COURSES OPEN TO STUDENTS IN THE THIRD AND FOURTH YEARS

Third and Fourth year students may take any of the courses open to Second year students.

300. OLD ENGLISH (Full course). English Language and Literature up to the Norman Conquest. The course includes reading from Anglo-Saxon prose in the first term; and in the second, a study of heroic poetry. The texts used are: Bright, *Anglo-Saxon Reader* and *Beowulf*, ed. Klaeber. The course is open to Third and Fourth year students taking Honours in English or in English combined with another subject. *Third and Fourth year students in other categories must have the instructor's permission to take the course.*

Students who propose to proceed to the M.A. in English should note that, if Course 300 has not been included in their undergraduate work, it must be included in their graduate work.

3 hours. *Professor Hemlow*

305a. CHAUCER (Half course). A study of *The Canterbury Tales*, their sources and analogues. Robinson's text (the Student's Cambridge Edition of the Complete Works) is used.

First term: 3 hours. *Professor Hemlow*

305b CHAUCER (Half course). A study of the dream-vision poems and of the Troilus story.

Second term: 3 hours. *Professor Hemlow*

310. MIDDLE ENGLISH (Full course). Studies in Middle English Literature (exclusive of Chaucer). The course is open to students who have taken either Old English or Chaucer. Emerson, *Middle English Reader* is used

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in the first term; and in the second, *Middle English Metrical Romances*, ed. French and Hale, and *Lyrics of the 13th and 14th Centuries*, ed. Carleton Brown.

3 hours. *Dr. Kinghorn*

315b. NON-DRAMATIC LITERATURE OF THE FIFTEENTH AND SIXTEENTH CENTURIES (Half course). A survey of non-dramatic literature from Sir Thomas More to Spenser, with special reference to humanistic theories of literature and education, and to the development of poetic techniques.

Second term: 3 hours. *Professor Hemlow*

318a. SIDNEY AND SPENSER (Half course). The Renaissance theory of poetry, and a study of the *Faerie Queene* in relation to its historical, philosophical, ethical, social and literary backgrounds.

First term: 3 hours. *Professor Hemlow*

318b. MILTON (Half course).

Second term: 3 hours. *Professor Malloch*

320. ENGLISH LITERATURE IN THE SEVENTEENTH CENTURY (Full course).

3 hours. *Professor Malloch*

322a. POETRY OF THE ROMANTIC PERIOD: 1780-1840 (Half course).

First term: 3 hours. *Professor Lucas*

322b. POETRY OF THE VICTORIAN PERIOD: 1840-1890 (Half course).

Second term: 3 hours. *Professor Lucas*

325. THE HISTORY OF THE ENGLISH DRAMA FROM THE BEGINNINGS TO 1642, EXCLUDING SHAKESPEARE (Full course).

3 hours. *Professor Walker*

(*Not given in 1957-58*)

330. ENGLISH DRAMA FROM 1660 TO THE PRESENT (Full course).

3 hours. *Mr. Cecil*

331. CONTINENTAL EUROPEAN AND AMERICAN DRAMA FROM IBSEN TO THE PRESENT (Full course).

3 hours.

335. THE ENGLISH NOVEL FROM THE BEGINNINGS TO THE PRESENT TIME (Full course). This course includes some reference to foreign work and to related literary types.

3 hours. *Professor Files*

(*Given in 1957-58, but not in 1958-59*)

336b. THE SHORT STORY (Half course). The history of the short story in English, with some reference to foreign work and to related literary types. Twentieth-century forms and techniques are emphasized.

Second term: 3 hours. *Professor Beresford-Howe*

340. STUDIES IN LITERATURE SINCE 1900 (Full course). Contemporary authors, English and American, with special emphasis on novelists and dramatists.

3 hours. *Professor Files*

(*Not given in 1957-58*)

341. CANADIAN LITERATURE (Full course). Lectures on the development of prose literature and poetry in Canada from the beginnings to the present time.

3 hours. *Professors MacLennan and Dudek*

345. ENGLISH PROSE FROM BACON TO THE PRESENT (Full course). The purpose is to trace the development of English prose expression, to show how the powers of the language have become enlarged as writers have responded to the challenge of new ideas and new inventions in writing techniques. Authors representative of each period are studied in detail and include non-fiction writers, novelists, and biographers.

3 hours. *Professor MacLennan*

355a. THE ART OF POETRY (Half course). A study of poetic forms and techniques. Though the course is intended for students of literature generally, the practising writer will find it useful: students are encouraged to submit work of their own for critical discussion in conference.

First term: 3 hours. *Professor Dudek*

365. BRITISH AND AMERICAN POETS OF THE TWENTIETH CENTURY (Full course). A survey of modern poetry.

Texts: The collected poetry of W. B. Yeats, T. S. Eliot, Robert Frost, Ezra Pound, W. H. Auden, and Dylan Thomas.

3 hours. *Professor Dudek*

370. CROSS-CURRENTS BETWEEN ENGLISH LITERATURE AND THE EUROPEAN LITERATURES IN THE 18TH CENTURY (Full course). This course deals with the influence of continental literature and criticism on the English neo-classicism of the 18th century, and with the influence of English literature and criticism on European writers from the time of Voltaire to the rise of Byronism. It includes reference to the works of French, German and Italian authors. A reading knowledge of French is a prerequisite.

3 hours. *Professor Klima*

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380a. BIBLIOGRAPHY (Half course). An introduction to the apparatus and methods of scholarship in literary studies. *Open to Honours students. Others may register only by permission of the Department. Students intending to proceed to the M.A. in English should note that this is a required course for that degree.*

First term: 3 hours. *Professor Malloch*

395. CREATIVE WRITING—ADVANCED COURSE (Full course). Open to a limited number of undergraduate students who appear well qualified for mature creative writing. Application for permission to take this course should be made at the beginning of the session. *Registration is limited.*

Hours to be arranged. *Professor Files*

HONOURS CURRICULUM IN ENGLISH

A student wishing to take full Honours in English must, during his Second Third, and Fourth years, take a total of ten courses approved by the Department. These must include Half Courses 305a or 305b (Chaucer) and 315b (16th Century); and Courses 200 (Shakespeare), 320 (17th Century), 220 (18th Century), 230 for which Half Courses 322a and 322b may be substituted, (19th Century) and 340 (20th Century). The remaining four of the ten courses are to be elected from those approved as Honours Courses by the Department, and may include Cognate Courses as in the list given below. It should be noted that, of the required courses indicated above, English 240 and 335 will be given in 1957-58 but will not be offered in 1958-59.

The normal procedure is that the student takes English 200 and English 230 in his Second year and four courses in each of his Third and Fourth years.

HONOURS IN ENGLISH COMBINED WITH ANOTHER SUBJECT

Students may take Honours in English combined with any one of the following subjects: French, German, Greek, History, Latin, Philosophy. The requirements for each of these combinations are as follows:

Joint Honours in English and French

1st year: English 100; French 11 or 13; three other courses.

2nd year: English 200 and 230; French 21 (or 23) and 22; one other course.

3rd year: English 320 with French 31, *or* English 220 with French 32; English 335 with French 45, *or* English 340 (or 365) with French 47, *or* English 305a (or 305b) with French 44; History 6 or Linguistics 21.

4th year: English 305a (or 305b) with French 44; English 318b; French 41 and 48; another course to be selected in consultation with the Departments, preferably History 10, Philosophy 6, or Art 301.

Joint Honours in English and German

1st year: English 100; German 1 (or its equivalent); three other courses.

2nd year: English 200; two German courses chosen from 5, 7 and 8; two other courses to be selected in consultation with the Departments.

3rd year: English 320 (or 220), 322a and 322b; two German courses chosen from 8, 9 and 10.

4th year: Two English courses chosen from 325, 330 and 331; two German courses chosen from 10, 12 (half-course), 13 and 14 (half-course).

Joint Honours in English and Greek

1st year: English 100; Greek 1; three other courses.

2nd year: English 200 and 230; Greek 21 and 22; one other course to be selected in consultation with the Departments.

3rd year: English 305b, 315b, and 318b; Greek 31 and 32.

4th year: English 320 (or 220); Greek 41; *either* English 325 (or 330) *or* English 318a and Greek 42.

Joint Honours in English and History

1st year: English 100; History 100; three other courses.

2nd year: English 200 and 230; History 210 and 200 (or 205); another course to be selected in consultation with the Departments.

3rd year: English 220 and 320; History 326 and a special subject in the field of English History.

4th year: English 305a, 305b (or 322a), 315b and 318b; History 310 (or 400) and a special subject continued from the 3rd year.

Joint Honours in English and Latin

1st year: English 100; Latin 1, or Latin 12; three other courses.

2nd year: English 200 and 230; two Latin courses chosen from 21, 22 and 23; one other course to be selected in consultation with the Departments.

3rd year: English 305b, 315b and 318b; Latin 31 and 32.

4th year: English 320 (or 220) and 325 (or 330); Latin 41 and 42.

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Joint Honours in English and Philosophy

1st year: English 100; four other courses.

2nd year: English 200 and 230; Philosophy 200 (if special field is Systematic Philosophy) or 300 (if special field is Ethics); another course to be selected in consultation with the Departments.

3rd year: English 315b, 318a and 320; Philosophy 350 and 360.

4th year: English 305a and 305b with Philosophy 370, *or* English 340 (or 365) with Philosophy 320; Philosophy 410 (if special field is Systematic Philosophy) or 400 (if special field is Ethics.)

COGNATE COURSES

Certain courses offered by other Departments will be accepted as electives for the English Honours degree. The attention of students is called to the following examples of recommended courses:

CLASSICS 20. CLASSICS IN TRANSLATION (Full course). Greek and Latin literature in translation. For Second, Third, or Fourth year students.

3 hours. *Professor McCullagh*

For particulars see the course as listed under the Department of Classics (page 1050).

LINGUISTICS 21. INTRODUCTION TO THE STUDY OF LANGUAGE (Full course). For Second and Third year students.

3 hours. *Professor Carruthers*

For particulars see the course as listed under the Department of Classics (page 1050).

GERMAN 6. A GENERAL SURVEY OF GERMAN LITERATURE FROM LESSING TO MODERN EXPRESSIONISM (Full course). For Second and Third year students.

3 hours. *Professors Graff and Bertha Meyer*

This course is given in English. See listing under Department of German (page 1092).

ITALIAN 25a. ITALIAN LITERATURE: DANTE AND THE MIDDLE AGES (Half course).

Lectures will be given in English. Students are not required to take Italian language courses as prerequisites.

First term: 3 hours. *Professor D'Andrea*

See listing under Department of Romance Languages (page 1146).

ITALIAN 25b. ITALIAN LITERATURE: THE RENAISSANCE AND MACHIAVELLI (Half course).

Lectures will be given in English. Students are not required to take Italian language courses as prerequisites.

Second term: 3 hours. *Professor D'Andrea*

See listing under Department of Romance Languages (page 1146).

PHILOSOPHY 320. AESTHETICS (Full course).

3 hours. *Professor Henderson*

For particulars see the course as listed under the Department of Philosophy (page 1115).

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

FINE ARTS

Associate Professor WINTHROP JUDKINS, *Chairman*

Assistant Professor GUY VIAU

161. FUNDAMENTALS IN DRAWING (Full course). An introduction to the language of form, suitable for general students. Sketching from life, composition, and elementary design projects. May be taken in any year as an elective subject.

6 hours. *Professor Viau*

201. INTRODUCTION TO ART. May be taken in Second, Third, or Fourth year (Full course). The aim of this course is to develop the student's understanding and perception of the work of art as a visual medium of expression; and to observe and analyze the sequential development underlying the history of art and its principal epochs up to the present time.

Lecture course supplemented by discussions, written reports, and assigned reading.

3 hours. *Professor Judkins*

271. ADVANCED DRAWING AND PAINTING. Second, Third and Fourth years (Full course). Sketching and painting from life, still-life, and imagination. Two- and three-dimensional design projects in various media. Individual experimentation and self-criticism.

6 supervised, plus 3 unsupervised hours. *Professor Viau*

Prequisite: Fine Arts 161 or permission of the instructor.

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301. MODERN ART. Third and Fourth years (Full course). The modern movement in painting, sculpture, and architecture (with its attendant applied arts): its emergence (from about 1850), problems, character, and place in the continuity of art history.

The work will be conducted through lectures, discussions, reading, and reports.

3 hours. *Professor Judkins*

Prerequisite: Fine Arts 201.

401a. VENETIAN PAINTING OF THE RENAISSANCE. Third or Fourth year (Half course). A study of the Venetian school of painting from its late beginnings through the sixteenth century, including influences from the East and particularly from the North. Emphasis will be placed upon the greater names in the school, and attention given to its technical contribution to the Western tradition as well as its role in the development of the Baroque style.

3 hours. *Professor Judkins*

Prerequisite: Fine Arts 201.

(*Not given in 1957-58*)

401b. HISTORY OF ART. Third or Fourth year (Half course).

3 hours. *Professor Judkins*

Prerequisite: Fine Arts 201.

(*Not given in 1957-58*)

Note: *Except by special consent of the instructor, supplemental examinations will not be given in the following courses: Fine Arts 161 and 271.*

GENETICS

In Montreal

Professor	J. W. BOYES, *Chairman*
Associate Professor	F. C. FRASER
Assistant Professors	E. R. BOOTHROYD
	G. I. PAUL
Assistant Professor and Research Fellow	J. D. METRAKOS
Research Fellow	S. F. FYLES

At Macdonald College

Assistant Professors	W. F. GRANT
	G. E. BRADFORD
	R. I. BRAWN
Research Associate	BRONYS POVILAITIS

21. INTRODUCTION TO GENETICS, HUMAN HEREDITY AND EVOLUTION (Full course). This course is designed to provide a working knowledge of the Mendelian laws, linkage, sex determination, sex-linkage, the origin and nature of hereditary variations, and other basic concepts. Selected problems introduce the practical applications of these concepts and the laboratory work provides experience with experimental materials and methods. Human heredity is considered with particular reference to disease, mental conditions, and eugenics. An introduction to the theory of evolution in the light of genetic principles is presented.

First term: 2 hours and a 3-hour laboratory period. *Professor Boyes*

Second term: 3 hours.

Prerequisites: Biology 100.

Text: Srb and Owen, General Genetics.

32a. CYTOLOGY (Half course). The nature and organization of the protoplasm in animal and plant cells are outlined in relation to function. Such subjects as the physical and chemical properties of protoplasm, cytoplasmic inclusions, the organization of the nucleus and its behaviour in mitosis and meiosis, chromosome morphology and movement, etc. are discussed. Laboratory work is designed to give experience in the interpretation of the structure and dynamic processes of the protoplast.

First term: 2 hours and a 3-hour laboratory period. *Professor Boothroyd*

Prerequisite: Genetics 21a or 21.

Texts: De Robertis, Nowinski and Saez, General Cytology, 2nd ed.

32b. CYTOLOGICAL TECHNIQUE (Half course). The student is instructed in the preparation of microscope slides of plant and animal material for the study of the component parts of the protoplast, especially the nucleus. Various fixatives, stains and techniques are used to bring out the details of structure which cannot readily be seen in living material.

Second term: 6 hours laboratory. *Professor Boothroyd*

Prerequisite: Genetics 32a unless special permission is obtained from the instructor.

36b. DEVELOPMENTAL GENETICS (Half course). A consideration of the scientific method as it is used in studying how the gene works in controlling development.

Second term: 3 hours. *Professor Fraser*

Prerequisite: Genetics 21a or 21. Some knowledge of embryology is desirable.

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42b. MICROBIAL GENETICS (Half course). An analysis of recent progress in the genetics of micro-organisms such as viruses, bacteria, yeasts, paramecia, algae, fungi, etc.

Second term: 3 hours. *Professor Grant*

Prerequisite: Genetics 21. *Third year students may take this course only if they are concurrently taking Genetics 32a and 36b.*

Texts: Braun, Bacterial Genetics; Baele, Genetics of *Paramecium aurelia.*

(*Not given in 1957-58*)

43b. ADVANCED CYTOGENETICS (Half course). Consideration of linkage, self-fertilization, polyploidy, interspecific hybridization, irradiation effects, etc.

Second term: 3 hours. *Professor Grant and Boothroyd*

Prerequisites: Genetics 21a or 21 and 32a.

44. BIOMETRY (Full course). Elementary statistics and their application to problems in Biology.

2 hours and 3 hours of computation to be arranged. *Professor Paul*

Prerequisites: A university course in one of the Biological sciences and Mathematics 111, or the equivalent.

45a. GENETIC INTERPRETATION OF THE MECHANICS OF EVOLUTION (Half course). A careful analysis of evolution at three levels of progress: (1) the origin of hereditary variations through mutations, rearrangements of the genic materials within the chromosomes, polyploidy, etc.; (2) the action of selection, migration, isolation, etc. on the genetic structure of populations; and (3) the fixation of diversity through the origin and operation of mechanisms which prevent the breakdown of discontinuous variability.

First term: 3 hours. *Professor Boyes*

Prerequisites: Genetics 21a or 21 and 32a which may be taken concurrently.

Text: Dobzhansky, Genetics and the Origin of Species, 34d. ed.

(*Not given in 1957-58*)

45b. POPULATION GENETICS (Half course). The rules governing the establishment of genetic equilibrium and the application of these rules to the study of evolution.

Second term: 3 hours. *Professor Paul*

Prerequisite: Genetics 45a.

(*Not given in 1957-58*)

46a. THE GENETICS OF MAN (Half course). Principles of heredity and special techniques as applied to the study of man's genetic diversity will be considered at an advanced level.

First term: 3 hours. *Dr. Metrakos*

Prerequisite: Genetics 21. *Third year students may take this course only if they are concurrently taking Genetics 32a and 36b.*

47a or 47b. SPECIAL TOPICS (Half course). This course is for advanced students of high standing who wish to read extensively in a particular field or undertake a minor research problem in Genetics or Cytology.

The Staff

48a. DESIGN OF EXPERIMENTS (Half course). General principles of experimentation, and designs appropriate to a wide variety of problems. Completely randomized, randomized blocks and Latin square designs: their purposes, design and analysis. Factorial experimentation, interaction, confounding, randomization and error terms. Complex experiments and an elementary treatment of incomplete black designs. Concomitant measurements, sensitivity and control of error variation. Examples drawn from biology.

First term: 2 hours and 3 hours laboratory (arranged). *Professor Paul*

Prerequisite: Genetics 44 or the equivalent.

Text: Fisher: The Design of Experiments (Oliver and Boyd).

HONOURS COURSES

The Honours Courses in Genetics are designed to give students a good general knowledge of Biology, plus sufficient Genetics to qualify as a research assistant in Genetics or Cytology and for Graduate Studies in these fields. Students having at least second class standing may, with the approval of the Department, enter the Honours Course in their Second or Third year. Three alternative programmes are offered, one with emphasis on Botany one with emphasis on Zoology, and one with emphasis on Biochemistry and Bacteriology.

First year: The general B.Sc. curriculum, including at least one half-course in Botany or Zoology or Biology 100.

Second year: Botany 11b, Chemistry 22, Genetics 21, Zoology 211, one half-course Arts option. Also, *Botany interest students* will take Botany 21, and *Zoology interest students* will take Zoology 221.

All students should complete Biology 100 and Zoology 211 (or Botany 11 and Zoology 11), or the equivalent, by the end of this year.

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Third year: Genetics 32a, 32b and 36b. *Botany interest students* will also take Botany 22a and 31; Zoology 221; Genetics 43b (if given) plus a half-course Arts option, *or*, a full-course Arts option when Genetics 43b is not given. *Zoology interest students* will take (in addition to Genetics 32a, 32b and 36) Botany 21, Physiology 22, Zoology 322a and 322b, and a half course Arts option.

Fourth year: Genetics 44, 45a, 43b or 45b, a full-course Arts option. *Botany interest students* will take, in addition, Botany 32 and Physiology 22. *Zoology interest students* will take, in addition, Zoology 324 or 325 plus 325L (in the latter case reducing the Arts option to a half course) and Biochemistry 31.

Students may transfer from General Honours in Biological Sciences at the beginning of the Third year. Such transfer students electing the Botany interest will substitute Physiology 22 for Zoology 221 and add Biochemistry 31 in the Fourth year. Such transfer students electing the Zoology interest will take a full-course Arts option in the Third year plus either Genetics 43b (when given) *or* an additional half course in Zoology.

An alternate Honours Course in Genetics has been approved for students interested in Biochemistry and Bacteriology.

First year: The general B.Sc. curriculum, including a half-course in both Botany and Zoology or Biology 100.

Second year: One half-course Arts option, Botany 11b, Chemistry 22, Genetics 21, Physiology 22 and Zoology 211.

Third year: A half-course Arts option, Bacteriology 31, Biochemistry 31, Genetics 32a, 36b, 42b or 46a, Zoology 322a and 322b.

Fourth year: One full-course in Bacteriology, Biochemistry 45, Botany 23a, Genetics 44, 45a, 45b or 43b, 42b or 46a.

Students of satisfactory standing, and having most of the courses required for the first two years, may be admitted at the beginning of the Third year if there is reasonable prospect that they can complete the requirements for the Honours Course in Genetics by the end of the Fourth year.

CONTINUATION COURSES

Second year: Genetics 21.

Third year: Genetics 32a, 32b, 36b.

Fourth year: Genetics 42b to 47b inclusive, except Genetics 44.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

GEOGRAPHY

Professor	F. K. HARE, *Chairman*
Associate Professors	J. BRIAN BIRD SVENN ORVIG BOGDAN ZABORSKI
Assistant Professors	R. NORMAN DRUMMOND THEO L. HILLS J. D. IVES WILLIAM F. SUMMERS
Honorary Lecturer	GEORGE JACOBSEN

FIRST YEAR

121. THE ELEMENTS OF PHYSICAL GEOGRAPHY (Full course). Scientific study of man's habitat. The course is divided into two main parts:

A. The origin and world distribution of landforms developed under different climates. Major earth resources: water, soils, and minerals.

B. Climate and weather; physical processes and properties of atmosphere. The principal climatic belts of the world. Significance of climate as a factor influencing human settlement.

3 hours. *Professors Bird and Hare*

(In Science Division) *No prerequisite.*

LATER YEARS

N.B. *The first digit of each course number shows the academic year for which the course is mainly designed. Students in other years may register for any course provided (i) that they have the prerequisites, and (ii) that general registration requirements are fulfilled.*

211. INTRODUCTION TO HUMAN GEOGRAPHY (Full course). The relation of early man to the environment; the beginnings of agricultural and pastoral economies. The major physical zones of the earth, the varieties of human society typical of each, and the place of each zone in world trade and food production.

3 hours. *Professor Hills*

(In Arts Division) *No prerequisite.*

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221. PRACTICAL GEOGRAPHY (Full course). The construction and properties of common map projections. The analysis of topographic maps and aerial photographs. Reconstruction of cultural landscape from cartographic evidence. Special purpose maps: e g., land use, commodity, population, etc.; their construction and interpretation.

1 hour and laboratory periods. *Professor Summers*

(Science Division) *No prerequisite.*

This course may be taken with a Geography continuation program in either the Arts or Science Division. Otherwise it must be considered to be in the Science Division.

231. THE PRINCIPLES OF REGIONAL PHYSICAL GEOGRAPHY (Full course). The evolution of the landscapes of the earth. A systematic comparison of the physical environments of different regions of the world. An introduction to pedology, hydrology and physical oceanography.

3 hours. *Professor Bird*

(In Science Division) *No prerequisite.*

311. NORTH AMERICA (Full course). Canada and the United States are divided into a small number of natural regions. In each region the physical environment as a background to man's development is first studied. Then in turn, occupation by Indian and European peoples is discussed, leading up to an examination of the present cultural landscape. The part played by the region in the life of the country and some of its problems are analysed.

3 hours. *Professors Bird and Hills*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211 or 231.

313b. THE BRITISH ISLES (Half course). The British nations: Scots, Welsh, Irish, English. Physical characteristics of the islands. Economic structure of modern Britain and Ireland: rural and urban land use, industrial districts and communications. Pressure on land and the present-day crisis. Detailed studies of specific regions.

3 hours. *Professor Hare*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211 or 231.

314a. LATIN AMERICA (Half course). Physical and cultural landscapes of Mexico, Central America, the West Indies, and South America. Human, agricultural, and industrial resources; present state of development. The unbalanced economy and inadequate food production of most of Latin America. History and present status of Canadian-Latin American trade.

First term: 3 hours. *Professor Hills*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211 or 231.

315. EUROPE (Full course). Europe as Eurasia's peninsula; its physical geography. Physical and cultural aspects of the population, and the influence of migrations on distribution. Land use, farming, and rural settlement types. Urban settlement, including mining and industrial development. Differentiation of Europe into East and West; nations and states and their competition.

3 hours. *Professor Zaborski*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211.

319. THE SOVIET UNION (Full course). Position, relief, and structure; general physical characteristics, including climate, soil, vegetation, and physiography. Ethnic groups. Correlation between population distribution and physical geography. Migration and settlement. The territorial development of Russia. Land use, agriculture, mining, and other industries. Recent developments and social significance of Soviet economic life. Urbanization. The administrative structure of the Soviet State.

3 hours. *Professor Zaborski*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211.

321. MAP INTERPRETATION AND CARTOGRAPHY (Full course). A study in analysis and interpretation of topographic maps and aerial photographs. Elementary photogrammetry.

1 hour and laboratory periods. *Professor Summers*

(In Science Division) *Prerequisite:* Geography 121 or 211 or 231 or Geology 121.

411a. THE GEOGRAPHY OF INDUSTRY (Half course). The influence of geographical factors on economic activity. A survey of the energy sources available to man; the demands made upon these resources in the past. The location of heavy industry, especially the steel industry in North America. A survey of industrial regions, with special reference to North America.

First term: 3 hours. *Professor Hills*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211 or Geology 121.

411b. THE GEOGRAPHY OF AGRICULTURE (Half course). A study of world agricultural resources. The origins and development of modern agriculture. Crops and agricultural practices in the major agricultural regions of the world, with special attention to the underdeveloped areas. The role of the forests and marine resources in the subsistence economies.

Second term: 3 hours. *Professor Hills*

(In Arts Division) *Prerequisite: One* of Geography 121 or 211 or 411a.

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413. HISTORICAL GEOGRAPHY (Full course). Relations among man, habitat, and economy in early, medieval, and modern times. Reconstructing the geographical *milieu* of past cultures. Climate and civilization.
3 hours. *Professor Hare*

(In Arts Division) *Prerequisite:* Geography 211.

414a. ELEMENTARY METEOROLOGY (Half course). Physical properties of the atmosphere. Radiation and the energy balance; causes of circulation. The formation of clouds and precipitation. Winds and pressure. The frontal and airmass theories. Use of instruments. The World Meteorological Organization and its work. Practical work on weather maps.
First term: 3 hours. *Professor Hare*

(In Science Division) *Prerequisite:* Geography 121 or 231 or Geology 121. Open to any other science student with written approval of Instructor.

414b. WORLD CLIMATES (Half course). Scope of climatology. The great climatic zones and the general circulation of the atmosphere. Climatic classification: the methods of Köppen and Thornthwaite. Climate and life: influence of atmosphere on plants, animals, and man. Climate and hydrology: the moisture cycle. Climatic change.
Second term: 3 hours. *Professor Orvig*

(In Science Division) *Prerequisite:* Geography 121 or 231 or Geology 121 or Botany 11.

415a. GENERAL POLITICAL GEOGRAPHY (Half course). Political geography defined. Historical development of views about the relations between environment and nation. The concept of the nation and the geographical approach to the problems of the development and conflict of nations. Interrelations between demographic, economic, and political factors.
First term: 3 hours. *Professor Zaborski*

(In Arts Division) *Prerequisite:* Geography 211.

415b. POLITICAL GEOGRAPHY OF EUROPE AND ASIA (Half course). Colonial powers and their activities. The changing political map of the world. Geographical approach to some modern national problems. Mackinder's concepts of the Heartland and of the peripheral areas. Continental "core" and maritime outer zone. Geographical aspects of the present division of the world between the West and the communist-held areas.
Second term: 3 hours. *Professor Zaborski*

(In Arts Division) *Prerequisite:* Geography 211.

416. THE CONSERVATION OF NATURAL RESOURCES (Full course). The rôle of man as an ecological dominant is stressed. A survey is made of the evidence from the field of natural science supporting this view of man. The conservation movement is studied in terms of its development, justification, objectives, and methods.

3 hours. *Professor Summers*

(In Science Division) *Prerequisite:* Geography 231, or permission of instructor.

417a. THE HISTORY OF GEOGRAPHIC THOUGHT (Half course). The content of geography is traced from the ancient to the modern world. Particular emphasis is given to the development of geographic thought during the nineteenth and twentieth centuries. Reading assignments are made from the original literature.

First term: 3 hours.

(In Arts Division) For Honours students only.

421. THE TECHNIQUE OF REGIONAL STUDIES (Full course). The idea of regional survey. Surveys of land use. Classification of land types. Study of existing regional surveys and projects: the Land Utilization Survey of Britain, The Tennessee Valley Authority, and other North American projects. A regional study will be made of a selected area in Canada.

3 hours. *Professor Summers*

(In Science Division) *Prerequisite:* Geography 221 or 321 *and* 121 or Geology 121.

HONOURS COURSES

First year students intending to take Honours in Geography should consult the Department before end of session. Honours students will be required to make their selection of Second, Third, and Fourth year courses from the following list. In addition, all Honours students entering their Third or final year are required to participate in the annual field trip held early in the fall.

B.Sc. Students

Second year: Geography 121 or 231, 211, 221, 311, Biology 100 (Botany half only), and Botany 11b.

Third year: Geography 231, 321, 414a and 414b, and one of 314a and 313b, 315, 319; one course in Geology, and one other course in Botany, Geology, Zoology, Mathematics or Physics.

Fourth year: Geography 416, 417a, 421; one of 314a and 313b, 315, 319; one of 411a and 411b, 413, 415a and 415b; one approved course outside the department.

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JOINT HONOURS IN GEOGRAPHY AND BOTANY: See under Department of Botany.

B.A. Students

Second year: Geography 121 or 231, 211, 221, 311; any one course in History, Anthropology, Economics, Political Science or a modern language.

Third year: Geography 321, 415a and 415b, 411a; one of 314a and 313b, 315, 319; one other course to be selected by the student.

Fourth year: Geography 411b, 413, 416, 417a, 421; one of 314a and 313b, 315, 319.

N.B.—The order in which the above courses are taken may be changed if timetable conflicts arise. Students with special qualifications may also be recommended to follow a slightly different programme.

JOINT HONOURS IN GEOGRAPHY AND HISTORY

First year:
Geography 121.
History 100.
Three other courses as required by Faculty.

Second year:
Geography 211 (Human).
Geography 221 (Practical).
History 205 (Colonial Expansion).
Either History 200 (Mediaeval Life and Institutions)
or History 210 (Great Britain).
One other course as required by Faculty.

Third year:
Geography 311 (North America).
History 305 (Canada).
One of: Geography 313b (British Isles) and 314a (Latin America).
Geography 315 (Europe).
Geography 319 (Soviet Union).
One of: An appropriate Special Subject in History.
History 310 (British Industrial Democracy), if combined with Geography 313b and 314a.
History 315a (Slavs and Habsburgs) and 315b (E. Europe), if combined with either Geography 315 or 319.

Fourth year: Geography 413 (Historical).
Geography 415a (Political).
Geography 415b (Europe and Asia).
History 405 (Economic, U.S. and Canada).
One of: The Special Subject in History continued from Third year.
History 420 (Modern Europe).

CONTINUATION COURSES

For B.A. students taking continuation in Geography:

Second year: Geography 211, 221.

Third year: Geography 311, 411a and b.

Fourth year: Geography 413, 415a and b, 314a and 313b, 315, 319.

For B.Sc. students taking continuation in Geography:

Second year: Geography 231, 221.

Third year: Geography 321, 414a and b.

Fourth year: Geography 416, 421.

Students taking Geography as a continuation subject are advised to consult the Departmental Chairman before completing registration.

GEOLOGICAL SCIENCES

Professors — T. H. Clark, *Chairman*; J. E. Gill; E. H. Kranck

Associate Professors — J. S. Stevenson; J. E. Riddell

Assistant Professors — J. A. Elson; V. A. Saull; C. W. Stearn

Research Associates — G. R. Webber; M. J. Rickard

Demonstrators

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121. GENERAL GEOLOGY (Fac. Eng. 1142) (Full course). First or Second year. The Earth and the Solar System. Its composition by minerals and rocks. Erosive forces (weather, wind, rivers, waves, etc.) modifying its surface, and deformative factors (temperature, compression, etc.), affecting its

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subsurface structure are thoroughly treated. The origin and historical development of the earth and of living things are briefly considered. The economic aspects of all phases of the subject are treated throughout the course.

2 hours lectures and 2 hours laboratory, sections to be announced at first meeting; four half-day excursions during October.

Professors Clark and Stearn

Text:

Reference books: Agar, Flint, and Longwell, Geology from Original Sources (Holt, 1929); Holmes. A., Principles of Physical Geology (Ronald Press, 1945); Gilluly, Waters, and Woodford, Principles of Geology (Freeman, 1951); Leet and Judson, Physical Geology (Prentice-Hall, 1954).

221. MINERALOGY (Fac. Eng. 1144 and 1162). Second year (Full course) Lectures: crystallography; physical properties and chemical composition of minerals, the more important ore minerals, industrial minerals, rock-forming minerals, uses and sources of supply of economic minerals. Laboratory: study of crystal models and crystals; methods for the determination of the constituents of minerals by blowpipe analyses and by related chemical tests, application of these plus physical characters in the identification of minerals.

2 lectures, 3 hours laboratory per week, session. *Professor Stevenson*

Text: Dana (Hurlbut), Manual of Mineralogy (Wiley, 1952).

231c. FIELD GEOLOGY (Fac. Eng. 1165). Second or Third year (Half course). Surface and underground geological field survey methods. Preparation of geological maps, sections, models, and reports from field notes, diagrams, aerial photographs, etc.

Two-week field school in May. *Professor Riddell*

Prerequisites: Surveying 324, 352, 761, Geology 121, 221. Students intending to take this course must first satisfy the instructor as to their fitness.

References: Lahee, Field Geology, 5th ed. (McGraw-Hill); McKinstry, Mining Geology (Prentice-Hall, 1948).

232b. STRUCTURAL GEOLOGY (Fac. Eng. 1166). Second or Third year (Half course). A systematic survey of rock structures, their origins and practical importance. Laboratory period will be devoted to practical problems.

Second term: 2 lectures and 1 laboratory period. *Professor Riddell*

Prerequisites: Geology 121, 221.

Text: Billings, Structural Geology, 2nd ed. (Prentice Hall).

331a. OPTICAL MINERALOGY. Third or Fourth year (Half course). Topics covered in the lectures include refraction and double refraction, polarization of light, and the nature of and reason for the various optical characters exhibited by non-opaque minerals. The laboratory course gives practice in the determinations of these characters, using the polarizing microscope.

First term: 2 lectures, 3 hours laboratory. *Professor Stevenson*

Prerequisites: Geology 121, 221.

References: Larsen and Berman, Microscopic Determination of Non-opaque Minerals, 1934 (Bull. 848, U.S. Geol. Surv.); Wahlstrom, Optical Crystallography, 1951 (Wiley); Winchell, Elements of Optical Mineralogy, Part I, 1937 (Wiley).

332a. PETROLOGY (Fac. Eng. 1164). Third year (Half course). The common igneous, sedimentary, and metamorphic rocks are described and their modes of occurrence discussed. In the laboratory, the student learns to identify such rocks by methods used in the field.

First term: 2 lectures and 1 laboratory period. *Professor Kranck*

Prerequisites: Geology 121, 221.

Text: G. W. Tyrrell, The Principles of Petrology, 1949.

333b. PETROGRAPHY (Fac. Eng. 1168). Third year (Half course). The examination and identification of rock minerals and rocks by means of the petrographic microscope.

Second term: 2 lectures and 1 laboratory period. *Professor Kranck*

Prerequisite: Geology 332a.

Texts: Rogers and Kerr, Optical Mineralogy; E. E. Wahlstrom, Petrographic Mineralogy, 1955; Williams, Turner, Gilbert, Petrography, 1954.

341b. PALEONTOLOGY. Fourth year (Half course). The development of ideas concerning the origin of fossils. Kinds of fossils. Collecting, preparation, and naming of fossils. Brief survey of systematic paleontology, following the standard biological classification, with emphasis on fossil animals. The stratigraphic and economic importance of paleontology. The influence of paleontology upon the doctrine of evolution.

Second term: 2 lectures, 1 laboratory period, and one day's field work in April. *Professor Clark*

Prerequisites: Geology 121, or Zoology 211 (for 1957-58, Zoology 11).

Text: To be announced.

342a. GEOMORPHOLOGY. Third or Fourth year (Half course). A study of the surface features of the earth, their origins, changing aspects, and influence on human activities. Special attention is given to the significance of

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various land forms in relation to soils, bedrock, rock structure, and the distribution of natural resources. Maps and photographs provide illustrations.

First term: 2 lectures and 1 laboratory period. *Professor Elson*

Prerequisite: Geology 121.

Text: Thornbury, Principles of Geomorphology, 1954.

343a. STRATIGRAPHY. Third or Fourth year (Half course). The principles of sedimentation. Weathering; sources and origin of sedimentary rocks; significance of their textures and structures. The structural relationship of strata; areal distribution of sedimentary rocks. Reference is made throughout the course to matters of economic importance.

First term; 2 lectures, 2 hours laboratory, and 2 full days of field work during October. *Professor Clark*

Prerequisites: Geology 121, 221.

Texts: Twenhofel, Principles of Sedimentation, 2nd ed.; Pettijohn Sedimentary Rocks, 2nd ed.

344b. MINERALOGRAPHY. Fourth year (Half course). Identification of ore minerals in polished sections by means of the reflecting microscope; interpretation of their textural relationships and paragenesis.

Second term: 2 lectures, 3 hours laboratory. *Professor Stevenson*

Prerequisites: Geology 331a or permission of instructor.

Texts: Short, Microscopic Determination of the Ore Minerals (U.S. Geological Survey Bulletin 914, 1940); Uytenbogaard, Tables for Identification of Ore Minerals, 1951 (Princeton University Press).

345b. CORRELATION. Third or Fourth year (Half course). Stratigraphic terminology. Correlation by lithological means: facies changes, subsurface geophysical methods, etc. Correlation by fossils, micropaleontologic methods, facies faunas, paleontologic limitations. Paleogeography and paleogeology. Throughout the course special consideration will be given to correlation as developed by the petroleum geologist.

Second term: 2 lectures, 2 hours laboratory, and 2 days' field work during April or May. *Professor Stearn*

Prerequisites: Geology 343a.

Text: Krumbein and Sloss, Stratigraphy and Sedimentation, 1951 (Freeman).

441. ORE DEPOSITS (Fac. Eng. 1182). Fourth year (Full course). Nature, origin, mode of occurrence, and classification of deposits of metallic and

of important non-metallic minerals; typical occurrences; geographical distribution.

2 lectures and 1 laboratory period per week. *Professor Gill*

Prerequisites: Geology 231c, 232b, 332a.

Text: Bateman, Economic Mineral Deposits (Wiley, 1950).

443b. EARTH PHYSICS (Half course). Physical properties of the earth, and the processes associated with its existence, as inferred from astronomy, geodesy, seismology, geology, meteorology, terrestrial magnetic and thermal effects, geochemistry, etc. Hypotheses and theories based upon or explaining the above. Critical evaluation of these hypotheses and theories.

Second term: 3 lectures per week, one of which may be replaced by a conference. *Professor Saull*

Prerequisites: Physics 47a, or permission of instructor.

444. GEOLOGY OF NORTH AMERICA (Fac. Eng. 1180). The first part of the course will deal with the physical development of North America, period by period, and the attendant evolution of life. The second part will review the relationship of the natural resources to the major geological units.

2 lectures and one 2-hour laboratory period per week, session.
Professors Elson, Riddell and Stearn

Prerequisites: Geology 231c, 232b, 332a.

Texts: Dunbar, Historical Geology (Wiley, 1949); Geology and Economic Minerals of Canada, 3rd. ed. (Geological Survey of Canada, 1947).

HONOURS COURSE IN GEOLOGY

Students intending to take Honours in Geology should discuss the matter with Professor Clark before registering in the Second year.

Prerequisite: At least a good second class standing in Chemistry 11, Physics 11 and Mathematics 111.

Second year: Geology 121 (General Geology), 221 (Mineralogy), Chemistry 24 (Physical), Mathematics 224 (Calculus) Engineering 324 (Surveying), Engineering 352 (Surveying Field School—2 weeks), Physics 23 (Electricity and Magnetism).

Third year: Geology 231c (Field Geology), 232b (Structural), 331a (Optical Mineralogy), 332a (Petrology), 333b (Petrography), Chemistry 27 (half course) (Qualitative Analysis), 73 (half course) (Quantitative Analysis), Engineering 761 (Surveying), and one Arts course.

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Fourth year: Geology 341b (Paleontology) or 344b (Mineralography), 342a (Geomorphology), 343a (Stratigraphy), 345b (Correlation), 441 (Ore Deposits), 443b (Earth Physics), 444 (Geology of North America), Physics 47a (Applied Geophysics), one Arts course.

Summer Work (in addition to Surveying Field School).

Two seasons' work on approved Geological or Geophysical field parties.

If Geology 121 is taken in the First year, Engineering 324 and 352 should also be taken in that year. Advanced courses may be taken in subsequent years as advised.

HONOURS COURSE IN GEOLOGY AND PHYSICS

First year: Geology 121 (General Geology); Physics 22 (Heat, Light, Sound)—if possible rather than Physics 11; Mathematics 113 (Adv. Trig., Algebra)—if possible rather than Mathematics 111; Chemistry 11 (General Chemistry); English 100 (English Literature) plus 100C (English Comp.); Surveying 324 and 352—*5½ courses in all.*

Second year: Geology 221 (Mineralogy); Geology 231c (Field Geology); Geology 232b (Structural Geology); Physics 23 (Electricity and Magnetism); Physics 24 (half course) (Dynamics); Physics 25 (half course) (Statics and Hydrostatics); Mathematics 225 (Calculus); Chemistry 24 (Physical); Surveying 761—*6½ courses in all.*

Third year: Geology 331a (Optical Mineralogy); Geology 332a (Petrology); Geology 333b (Petrography); Geology 343a (Stratigraphy); Physics 31a (Statics, Dynamics); Physics 32 (half course) (Properties of Matter); Physics 33 (half course) (Electronics); Physics 36 (Advanced Light); Physics 47a (Applied Geophysics); Mathematics 334 (Differential Equations)—*6 courses in all.*

Fourth year: Geology 345b (Correlation); Geology 441 (Ore Deposits); Geology 443b (Earth Physics); Geology 444 (Geology of North America); Physics 43a (Atomic Physics); Physics 44b (Radioactivity); Physics 48 (Electrical Measurements); Mathematics 333 (Advanced Calculus)—*6 courses in all.*

Summer work (in addition to Surveying Field School):

Two seasons' work on approved Geological Field Parties and one season's work on a Geophysical Field Party to be undertaken following the First, Second, and Third years.

CONTINUATION COURSES

Second year: Geology 121, or 221.

Third year: Geology 221 to 444.

Fourth year: Geology 221 to 444.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

GERMAN

Visiting Professor — H. S. Reiss

Assistant Professor — Bertha Meyer

Lecturer — V. R. Block

1. German language (Full course). Students intending to proceed to Course 5 from the above must have obtained a high Second Class and are required to read during the summer the following: Kästner, Emil und die Detektive (Holt).
3 hours.
(*Beginners' B.A. Course.*)

Those intending to proceed to Course 7 must have obtained a First Class and are required to study during the summer the following texts: The remaining chapters of Koischwitz, Die Bilderfibel (Crofts); Kästner, Emil und die Detektive (Holt); Storm, Immensee.
3 hours. *Professor Meyer and Mr. Block*

Texts: Curts, Basic German (Third Edition; Prentice-Hall); Erika Meyer, In der Stadt (Houghton Mifflin Co.)

2. German language (Full course).
3 hours. *Professor Meyer and Mr. Block*

Prerequisite: German 1 or Matriculation in German, or their equivalent.

Texts: Purin and Keil, Lern-und Lesebuch (Dryden Press, Macmillan Co. of Canada); Kästner, Emil und die Detektive (Holt).

Private Reading: Kinz, Das geheimnisvolle Dorf (Bk. 8. Univ. of Chicago Series, Heath); Genialische Jugend (Houghton Mifflin).

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3. GERMAN LANGUAGE (Full course). Students intending to proceed from German 3 to German 2 must have obtained a first or high second class and are required to read during the summer Koischwitz, Die Bilderfibel (Crofts). Those intending to proceed to German 5 must also read Kästner, Emil und die Detektive (Holt).

3 hours. *Professor Meyer and Mr. Block*

(*Beginners' B.Sc. Course.*)

Texts: Curts, Basic German (Third Edition; Prentice Hall); Fiedler and Sandbach, First Science Reader for German Students (Oxford Univ. Press).

4. GERMAN SCIENCE READING COURSE (Full course).

2 hours. *Mr. Block*

Prerequisite: German 1 or German 3 or Matriculation in German.

Text: C. V. Pollard, The Practical Solution to German Translation (The University Co. Op; Austin, Texas, 1950).

METHOD AND PRACTICE OF TRANSLATION. The first half of the course will be devoted to teaching the method of translating, the second half to actual translation of texts from various fields of interest.

5. GERMAN LANGUAGE (Full course).

3 hours.

Texts: Stroebe, Vom Alltag zur Literatur (Holt); Appelt and Funke, Modern German Prose (Heath); Schiller, Maria Stuart (Holt).

Private Readings: Storm, Immensee; Schnitzler, Der blinde Geronimo und sein Bruder.

6. GENERAL SURVEY OF GERMAN LITERATURE FROM LESSING TO MODERN EXPRESSIONISM. This course is given in English for students who do not know enough German to understand lectures given in that language. It is not open to those who are taking or have taken any of the courses listed as German 8, 9, 10, 11, 12, 13, 14.

3 hours. *Professor Meyer and . . . .*

7. GERMAN LANGUAGE AND LITERATURE (Full course). No student may proceed from German 1 to German 7 unless he has completed the summer work as given under Course 1.

3 hours. *Professor Meyer and Mr. Block*

Texts: Sutcliffe, German Translation and Composition (Harrap); Goethe, Urfaust (Harper); Goethe, Egmont (Holt).

Private Readings: Th. Mann, Tonio Kroger (Crofts); Grillparzer, Der arme Spielmann (Inselbücherei No. 82).

German Conversation: Students of the Second year intending to continue German in the Third year must attend a class in Oral German (one hour a week) until in the Professor's opinion they have reached a satisfactory standard.

NOTE:—In order to be admitted to the following courses a student must know German well enough to understand lectures delivered in German and express himself in German with some degree of fluency and correctness.

8. GERMAN LITERATURE IN THE 18TH CENTURY (Full course).
3 hours. *Professor Meyer*

Prerequisite: German 5 and/or German 7.

Texts: Lessing, Emilia Galotti (Heath); Goethe, Iphigenie (Heath); Schiller, Wallenstein (Holt); Stroebe and Whitney, Geschichte der Deutschen Literatur.

Private Readings: Lessing, Minna von Barnhelm; Goethe, Die Leiden des jungen Werthers (Insel-Bücherei, No. 493); Schiller, Kabale und Liebe.

9. GERMAN LITERATURE IN THE 19TH CENTURY (Full course). The important literary movements and writers of the 19th century are studied and discussed. Collateral readings.
3 hours.

10. FROM NATURALISM TO EXPRESSIONISM (Full course).
3 hours.

Prerequisites: German 8 and 9 or their equivalents.

11. MIDDLE HIGH GERMAN LANGUAGE AND LITERATURE (Full course).
2 hours.

Texts: A. Senn, An Introduction to Middle High German (Norton).

12. GERMAN LYRICAL POETRY (Half course).
1 hour, throughout the year.

13. HISTORY OF THE TRAGEDY IN GERMAN LITERATURE (Full course).
2 hours.

14. GOETHE'S FAUST (Half course).
1 hour throughout the year. *Mr. Block*

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COGNATE COURSE

LINGUISTICS 21. INTRODUCTION TO THE STUDY OF LANGUAGE. Available to Second and Third year students (Full course). An elementary survey of human speech, its nature, origin, structure and classification; principles of linguistic change; writing and the alphabet; universal and auxiliary languages.

3 hours. *Professor C. H. Carruthers*

(*Given in the Department of Classics. See page* 1050.)

HONOURS IN GERMAN

Students honouring in the Second year must choose two full courses from the following: German 5, 7, 8. In addition, two full cognate courses must be taken in some other department with the approval of the Department of German.

In the Third and Fourth years one full course must consist of either German 11 and 12 (or 14), or German 12 (or 14) and 13. The other full course must be chosen from German 8, 9, or 10. In addition, in each of the two years two full cognate courses must be taken in some other department with the approval of the Department of German.

Students may begin Honours in German in the Third year, if in the opinion of the Department they are qualified to do so.

JOINT HONOURS.

1. **German** and **French**: see under Department of Romance Languages.

2. **German** and **Greek** or **Latin**: Minimum first year requirements: German 1, Greek 1 or Latin 11 or their equivalents.

Second year:

German: Two courses selected from German 5 (Language and literature), 7 (Language and literature), 8 (18th Century literature).

Greek: Greek 21 (Readings from Homer and Attic Greek authors), and 22.

Latin: Latin 21 (Vergil's Aeneid) and 22.
One approved elective.

Third year:

German: Two full courses selected from German 8 (18th Century literature), 9 (19th Century literature), 12 (Half course, lyrical poetry), 14 (Half course, Goethe's Faust), 13 (Tragedy).

Greek: Greek 31 and 32.

Latin: Latin 31 and 32.

Fourth year:

German: Two full courses chosen from German 9 (19th Century-literature), 10 (From naturalism to expressionism), 12 (Half course, lyrical poetry), 1 (Half course, Goethe's Faust), 13 (Tragedy).

Greek: Greek 1 (Greek drama) and 42 (Greek philosophy).

Latin: Latin 1 and 42.

3. **German** and **English:** see under Department of English.

4. **German** and **History:**

First year: History 100, German 1, and *three* other courses as required by Faculty.

Second year: Two courses selected from: German 5 (Language); German 7 (Language and Literature) and Germa 8 (German Literature in the 18th century)
History 200 (Mediaeval Life and Institutions)
History 215 (Eastern Europe from the 7th century
One course selected from: English 200, French Linguistics 21 and Political Science 211H.

Third year: German 8 (Literature in the 18th Century)
German 9 (Literature in the 19th Century)
History 315a (The Slavs and the Habsburg Monarchy)
History 315b (War and Society in Eastern Europe)
History 410 (EuropeanThought since the Renaissance).

Fourth year: German 10 (Naturalism to Expressionism)
German 13 (Tragedy in German Literature)
History 420 (Europe, 1789-1939)
Political Science 311 (History of Political Theory).

5. **German** and **Philosophy:**

Minimum first year requirement in German: German 1 or its equivalent.

Second year:

German: Two courses chosen from German 5 (Language and literature), 7 (Language and literature), 8 (18th Century literature).

Philosophy: Philosophy 200 (Introduction to Philosophy) and 300 (Ethics). One approved elective.

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Third year:

German: Two full courses selected from German 8 (18th Century literature), 9 (19th Century literature), 12 (Half course, lyrical poetry), 13 (Tragedy), 14 (Half course, Goethe's Faust).

Philosophy: Philosophy 350 (Greek Philosophy) and 360 (Modern Philosophy).

Fourth year:

German: Two full courses selected from German 9 (19th Century literature), 10 (From naturalism to expressionism), 12 (Half course, lyrical poetry), 13 (Tragedy), 14 (Half course, Goethe's Faust).

Philosophy: One full course selected from Philosophy 320 (Aesthetics), 420 (Seminar on the Philosophy of Kant), and 450 (Seminar on the Philosophy of History).

And *either* Philosophy 400 (Ethics and Philosophy of Politics), if special field is Ethics,

or Philosophy 410 (Problems of Logic, Epistemology and Metaphysics), if special field is systematic Philosophy.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

HISTORY

Professor	H. N. FIELDHOUSE, *Chairman*
Associate Professors	C. C. BAYLEY
	J. I. COOPER
	W. S. REID
Assistant Professors	M. MLADENOVIC
	P. ZAGORIN

N.B.—Students who propose to read History, either as an Honours subject or as a Continuation subject, should see pages 1100-1102.

100. EUROPEAN CIVILIZATION IN THE MEDIAEVAL AND MODERN PERIODS. First year (Full course). The mediaeval period is studied in terms of its typical institutions: the Empire, the Papacy, feudalism, the gild, the dynastic state, etc. In the modern period, main emphasis is laid on the emergence of the Great Powers and the long-term problems, at home and abroad, which conditioned their policies.

3 hours. *Professor Bayley*

ANCIENT HISTORY 11. First year (Full course). Students who wish to take this course should see the notes below on Continuation and Honours Courses in History.

3 hours. *Given by the Classics Department*

200. MEDIAEVAL LIFE AND INSTITUTIONS. Second year (Full course).

3 hours. *Professor Bayley*

205. HISTORY OF COLONIAL EXPANSION WITH SPECIAL REFERENCE TO THE BRITISH EMPIRE. Second year (Full course). Approximately one-third of the course will be devoted to the overseas activities of the European States, 1500-1713; the remainder, to the history of the British Empire and Commonwealth. Throughout, emphasis will be placed on economic and social development.

3 hours. *Professor Cooper*

210. HISTORY OF GREAT BRITAIN. Second year (Full course). Survey of the development of British civilization since the Roman invasions. While constitutional and political changes are considered, the emphasis is placed (particularly in the modern period) on the economic, social and intellectual background.

With the consent of the Department, this course may be taken by Third year students.

3 hours. *Professor Reid*

215. HISTORY OF EASTERN EUROPE (FROM IVTH CENTURY). Second, Third and Fourth years (Full course). The mediaeval principle of legitimacy and the formation of the first barbarian states: ecclesiastical schism and the political division of Eastern Europe; the conflicts of Byzantines, Germans, Osmanlis, and Slavs; social and economic development: Eurasianism and the interaction of Western, Byzantine, and Eastern cultures.

3 hours. *Professor Mladenovic*

305. HISTORY OF CANADA. Third year (Full course). Early French and English enterprise in northeastern America; staple trades; settlement; colonial institutions. British America in the era of the American Colonial and French revolutions. Economic and political problems of the early XIXth century; the creation of the Canadian federal state: Western extension: development of the Canadian northland between two World Wars.

With the consent of the Department, this course may be taken by Fourth year students. Students are normally expected to have taken either History 205 or History 210 as a prerequisite to this course, but exceptions may be made, at the discretion of the Instructor.

3 hours. *Professor Cooper*

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310. THE RISE OF BRITISH INDUSTRIAL DEMOCRACY SINCE 1815. Third year (Full course). The economic expansion of Britain following the Napoleonic Wars and the consequent social and political movements: the rise of working class organizations, of trade unions and of the Labour party; the impact of major wars and depression upon Great Britain in the XXth century; the Labour Party's post-war rehabilitation measures.

With the consent of the Department, this course may be taken by Fourth year students.

3 hours. *Professor Reid*

315a. THE SLAVS AND THE HABSBURG MONARCHY (Half course). History of the problem of nationalities and of political stability in Central Europe from the time of the Slavonic migrations to the dissolution of the Austro-Hungarian Empire.

3 hours. *Professor Mladenovic*

315b. WAR AND SOCIETY IN EASTERN EUROPE (Half course). Historical, cultural, and demographic elements in the relations of the peoples of Eastern Europe and their bearing on the capacity of East European States to wage war; characteristics of East European States warfare; the bolshevik conception of warfare.

Save by special consent of the Department, this course is open only to students who have previously taken either History 420, 320, or 215.

3 hours. *Professor Mladenovic*

320. THE HISTORICAL BACKGROUND OF CONTEMPORARY EUROPE. Third and Fourth years (Full course).

3 hours. *Professor Fieldhouse*

(*Not given in 1957-58*)

325. SOCIETY OF WESTERN EUROPE FROM THE RENAISSANCE TO THE EVE OF THE FRENCH REVOLUTION. Third and Fourth years (Full course). Study of selected topics in the development of social institutions, religion and culture, from the XVth century to the mid-XVIIIth e.g. Humanism; the Reformation; the expansion of Europe; the scientific revolution of the XVIIth century; the changing character of social classes; the development of absolute monarchy.

3 hours. *Professor Zagorin*

326. TUDOR AND STUART ENGLAND. Third and Fourth years (Full course). A study of English society, politics, and thought from the end of the Middle Ages to the beginning of the eighteenth century. Among the topics discussed are, the development of the English state; economic expansion; the religious revolution; the civil war and its consequences;

the intellectual and social changes which led to the formation of a liberal political order.

3 hours. *Professor Zagorin*

400. HISTORICAL DEVELOPMENT OF THE INSTITUTIONS OF GREAT BRITAIN. Fourth year (Full course).

3 hours. *Professor Bayley*

405. ECONOMIC HISTORY OF THE UNITED STATED AND CANADA. Third and Fourth years (Full course). Survey of the economic history of the two countries from colonial times to the present. Emphasis is placed on the XIXth and XXth centuries, the expansion and consolidation of industry, and the rise of labour organizations.

Students are normally expected to have taken History 305 as a prerequisite to this course, but exceptions may be made, at the discretion of the Instructor.

3 hours. *Professor Cooper*

410. THE HISTORY OF EUROPEAN THOUGHT SINCE THE RENAISSANCE. Third or Fourth year (Full course).

3 hours. *Professor Reid*

411. HISTORY OF CELTIC BRITAIN AND IRELAND. Third and Fourth years (Full course).

3 hours. *Professor Reid*

(*Not given in 1955-56*)

415. HISTORY OF SOVIET RUSSIA (Full course). Geopolitical background; Marxian and non-Marxian roots of the Revolution; the two Revolutions and the Civil War; doctrinal foundations of the new order and later ideological changes: economic and political development; international relations; social structure, legal system and military organizations. cultural trends.

Save by special consent of the Department, this course is open only to students who have previously taken either History 420, 320, or 215.

3 hours. *Professor Mladenovic*

420. HISTORY OF EUROPE, 1789-1939. Fourth year (Full course).

For Honours students only.

3 hours. *Professor Fieldhouse*

(*Not given in 1957-58*)

421. HISTORY OF DIPLOMACY, WITH SPECIAL REFERENCE TO BRITISH FOREIGN POLICY SINCE 1815. Third and Fourth years (Full course).

3 hours. *Professor Fieldhouse*

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SPECIAL SUBJECTS

A period in, or aspect of, Ancient History.

England in the Age of Wyclif.

England and Scotland in the period of the Reformation.

England from the Restoration to the Accession of George III.

Economic and social change in Great Britain, 1832-1914.

British Imperial History — (a) Newfoundland (b) the West Indies in the XVIIth and XVIIIth centuries.

A topic in Canadian History, 1867-1896.

Origins of the First World War (1914-18) with special reference to British foreign policy.

Some aspects of the political history of the Balkans in the XIVth and XVth centuries.

The Russian Revolutions of 1917.

Honours students choose one of these special subjects for continuous study during their Third and Fourth years. They are expected to acquire a general knowledge of the subject chosen, and to make a more intensive study of one of its aspects, from original sources.

HONOURS IN HISTORY

With emphasis on the English-speaking world:

First year:	History 100. Four other courses.
Second year:	History 205 and 210. Three other approved courses.
Third year:	History 305, 310, 326 and Special Subject.
Fourth year:	History 420, 400, 405 and Special Subject.

With emphasis on Continental Europe:

First year:	History 100. Four other approved courses.
Second year:	History 200, 210 and 215. Two other approved courses.
Third year:	History 305, 315a and b, 325 and Special Subject.
Fourth year:	History 410, 415, 420 and Special Subject.

JOINT HONOURS

II. Honours in History and Philosophy:

First year:	History 100 and *four* other approved courses.

Second year: History 200 and 215.
Philosophy 200 and 300.

Ancient History 11 (or, if this has been taken in the first year, Ancient History 21 or 22) in the Classics Department.

Third year: History 410.

Two courses selected from Philosophy 350, 360 or 370.

One course selected from History 305 or whichever of Philosophy 350, 360, 370, has not been already chosen.

Fourth year: History 400 and 420.
Philosophy 400 and 450.

III. Honours in History and Political Science.

1. *For students specializing in International Relations:*

First year: History 100 and Four other courses as required by Faculty: one of these to be an approved Modern Foreign Language.

Second year: Political Science 211H.
History 200 and 215.

And *two* other approved courses: one of which shall be in a Modern Foreign Language selected in first year.

Third and Fourth years: Political Science 311, 323, 344 and 411a, and either 324b or 412b.

History 315a, 315b, 415, 420 and 421.

2. *For students of Comparative Government and General History:*

First year: History 100 and *Four* other Courses as required by Faculty.

Second year: Political Science 211H.

History 200, 205 and 210.

And *one* other approved course.

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Third and Fourth years: Political Science 311, 411a and 351.

Either Political Science 322 *or* 324b, 325b.

One of:

Political Science 353b and 355a.

History 305 and 420.

One course selected from:

History 310, 400 and 405.

Students who propose to study Comparative Government with an emphasis on the totalitarian regimes may be permitted to substitute History 215 for either History 205 or 210, and to substitute History 415 as an elective in History in the fourth year.

IV. For Honours in **History** and **Economics**, see under the Department of Economics and Political Science.

For Honours in **History** and **English**, see under the Department of English.

For Honours in **History** and **Geography**, see under the Department of Geography.

For Honours in **History** and **German**, see under the Department of German.

Honours students are required to have a reading knowledge of such foreign language or languages as may be appropriate to their proposed course of study. The Department will advise individual students on this matter.

In addition to the examination in the subjects taken in the last year, Fourth year Honours students have a general examination paper on the history studied by them in their four years.

HISTORY AS A CONTINUATION SUBJECT

Students who wish to take History as a Continuation subject must consult the Department as to their programme.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

MATHEMATICS

Professors
HERBERT TATE, *Chairman*
CHARLES FOX
E. M. ROSENTHALL
P. R. WALLACE
HANS ZASSENHAUS

Associate Professors
J. D. JACKSON
HYMAN KAUFMAN
WACLAW KOZAKIEWICZ
JOACHIM LAMBEK
T. F. MORRIS
J. E. L. PECK
R. T. SHARP
C. D. SOLIN

Assistant Professors
M. D. BURROW
P. L. BUTZER
G. D. FINDLAY
SAMUEL MELAMED
T. V. NARAYANA
B. A. RATTRAY
L. P. WOOD

Lecturers
D. M. KINGSBURY
MICHAEL HERSCHORN
KAILASH KUMAR
J. E. LEBEL
N. E. OLER
R. A. PATTERSON
J. H. PRILLAMAN
I. H. SHTERN
DAVID SUSSMAN
J. T. YAMADA

Demonstrators
G. G. BACH
EUGENE BUTKOV
H. C. KHARE
JOSEPH MURPHY

FIRST YEAR

First year students will normally register for Mathematics 111.

Courses 113 and 216 are of a more advanced nature and concentrate on the development of facility in doing difficult and interesting problems. Students who have passed well in Intermediate Algebra and Trigonometry at Junior Matriculation should take 113 or 216 instead of 111.

111. TRIGONOMETRY, ALGEBRA, ANALYTICAL GEOMETRY (Fac. Eng. 1200) (Full course).

PLANE TRIGONOMETRY. Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformations of sums and

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products, logarithmic solution of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

ALGEBRA. Variation, progressions, with applications to compound interest, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

ANALYTIC GEOMETRY. The analytic geometry of the straight line and circle.

3 hours. *Staff*

Text: H. TATE, *Elementary Mathematical Analysis* (Pitman).

113. ADVANCED TRIGONOMETRY AND ALGEBRA (Full course). The number system, elementary number theory, introduction to mathematical logic, Boolean algebra with application to switching circuits, plane analytic geometry, advanced trigonometry, statistics and probability, selected topics in topology.

3 hours. *Professor Lambek*

Text: Allendoerfer and Oakley, *Principles of Mathematics* (McGraw-Hill).

COURSES FOR GENERAL STUDENTS

216. ELEMENTARY ANALYTIC GEOMETRY AND ALGEBRA (Full course). Review of trigonometry. The analytic geometry of the straight line and circle. Permutations and combinations, binomial theorem, mathematical induction, complex numbers, functional notation, remainder theorem, solution of equations.

3 hours. *Mr. Oler and Staff*

Texts: Robin Robinson, *Analytic Geometry* (McGraw-Hill); T. S. Peterson, *College Algebra* (Harper).

221a *or* b. ELEMENTARY STATISTICS (Half course). Review of analytic geometry. Averages, standard deviation, correlation, curve fitting.

First or second term: 3 hours. *Professor Narayana*

Text: W. Kozakiewics, *Notes on Statistics* (McGill).

224. ELEMENTARY CALCULUS (Full course). Graphical representation; limits, differentiation and integration of elementary functions, with application to the determination of lengths, areas, and volumes and the solution of simple problems in mechanics, physics, etc.; partial differentiation.

This course is intended to give students of biochemistry, chemistry, economics, and sociology a working knowledge of the elements of calculus.

3 hours. *Professor Tate and others*

Texts: R. R. Middlemiss, *Differential and Integral Calculus* (McGraw-Hill).

228a. SPHERICAL TRIGONOMETRY AND ASTRONOMY (Half course). Geometry of the sphere, solution of spherical triangles, celestial sphere, time, positions of the heavenly bodies, determination of geographical position.

First term: 3 hours. *Professor Fox*

Texts: Rider and Hutchinson, *Navigational Trigonometry* (Macmillans, Kells, Kern, and Bland, *Spherical Trigonometry with Naval and Military Applications* (McGraw-Hill); *American Nautical Almanac for 1955* (U.S. Government Printing Office).

Reference books: R. H. Baker, *Astronomy* (Van Nostrand); W. M. Smart, *Text-book on Spherical Astronomy* (Cambridge University Press).

332. INTERMEDIATE CALCULUS AND DIFFERENTIAL EQUATIONS (Full course). Partial differentiation, Jacobians and implicit functions, mean value theorems, Green's theorem, Stokes's theorem, Taylor's series, line and multiple integrals, vectors. Solution of ordinary differential equations especially with constant coefficients, solution in series by the method of Frobenius, introduction to partial differential equations. Fourier series.

3 hours. *Professor Melamed*

Prerequisite: Mathematics 224.

Texts: Sherwood and Taylor, *Calculus* (Prentice-Hall); Kells, *Elementary Differential Equations* (McGraw-Hill).

335a. THEORY OF INTEREST (Half course). Simple and compound interest discount, annuities certain, sinking funds.

First term: 3 hours. *Professor Wood*

Text: H. Tate, *Mathematical Theory of Interest* (Pitman).

335b. MATHEMATICS OF LIFE INSURANCE (Half course). Expectations of life, annuities and assurances, reserves, return of premiums, conversion tables.

Second term: 3 hours. *Professor Wood*

Prerequisite: Mathematics 335a.

Text: Larson and Gaumnitz, *Life Insurance Mathematics* (Wiley).

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337. FURTHER CALCULUS AND DIFFERENTIAL EQUATIONS (Full course). Hyperbolic functions, partial differentiation, infinite series, beta and gamma functions, multiple integrals. Differential equations.

3 hours. *Professors Solin and Peck*

Prerequisite: Mathematics 224.

Text: T. S. Peterson, *Elements of Calculus* (Harper).

436. ALGEBRA AND ANALYTIC GEOMETRY (Full course). Complex numbers, properties of polynomials, partial fractions, theory of equations, determinants. The parabola, ellipse, and hyperbola. The general equation of the second degree. The elements of solid analytic geometry.

3 hours. *Professor Tate*

Texts: S. L. Green, *Algebraic Plane Geometry* (Univ. Tutorial Press); F. S. Nowlan, *College Algebra* (McGraw-Hill).

Prerequisite: Mathematics 224.

439. MATHEMATICAL STATISTICS (Full course). Probability, statistical independence, expected values, measures of dispersion, discrete and continuous distributions, binomial and normal laws; simple limit theorems; sampling; correlation and regression.

3 hours. *Professor Narayana*

Text: H. Cramer: *Elementary Probability and Statistics* (Wiley).

Prerequisite: Mathematics 224.

447. HIGHER MATHEMATICS FOR CHEMISTS. For chemists and other qualified students (Full course). Selected topics in algebra, advanced calculus, and mechanics, designed for prospective students of Quantum Chemistry.

2 hours. *Professor Sharp*

Prerequisites: Mathematics 224, 332 or 337.

HONOURS COURSES

Second year

225. CALCULUS (Full course). Limits, derivatives, and integrals. Application of differentiation and integration to the solution of problems involving maxima and minima, rates, curvature, lengths of curves, areas, volumes of solids, centres of gravity, and similar problems. Theorems of Rolle and Taylor.

3 hours. *Professor Rattray*

Text: Sherwood and Taylor, *Calculus* (Prentice-Hall).

226. PLANE AND SOLID ANALYTIC GEOMETRY (Full course). The plane analytic geometry of the straight line, circle, parabola, ellipse, hyperbola, the general equation of the second degree, polar co-ordinates. The line, plane, sphere, central conicoids, paraboloids, and ruled surfaces of the second degree in three dimensions. Spherical Trigonometry.

3 hours. *Professor Zassenhaus*

Texts: A. B. Grieve, *Plane and Solid Analytic Geometry* (Bell); MacRobert and Arthur, *Spherical Trigonometry* (Methuen).

227. ALGEBRA, THEORY OF EQUATIONS AND VECTOR ANALYSIS (Full course). Complex numbers, including De Moivre's theorem and geometrical representation; matrices and determinants and applications to systems of linear equations; polynomials of one variable; Graeffe's method for solution of numerical equations. Algebra of vectors, scalar and vector product of two vectors, multiple products, differentiation of vectors with applications to geometry and elementary mechanics.

3 hours. *Professor Lambek*

Texts: G. Coffin, *Vector Analysis* (Wiley); C. C. MacDuffee, *Theory of Equations* (Wiley).

Third year

331a. STATICS, DYNAMICS OF A PARTICLE, AND RIGID DYNAMICS (Physics 31a) (Half course). Dynamics of a particle in one and two dimensions, motion of pairs of particles, introduction to dynamics of rigid bodies, mass systems.

First term: 3 hours. *Professor F. R. Terroux (Physics)*

Texts: Lamb, *Statics*; and Lamb, *Dynamics* (C.U.P.).

Reference books: Synge and Griffith, *Principles of Mechanics* (McGraw-Hill); Slater and Frank, *Mechanics* (McGraw-Hill).

331b. STATICS, DYNAMICS OF A PARTICLE, AND RIGID DYNAMICS (Physics 31b) (Half course). Central orbits, elements of rigid dynamics in two and three dimensions, Lagrange's equations with simple applications, oscillation about equilibrium positions.

Second term: 3 hours. *Professor Fox*

Text: Slater and Frank, *Mechanics* (McGraw-Hill).

Reference Books: The books listed in 331a above.

333. ADVANCED CALCULUS (Full course). Partial differentiation, Jacobians and implicit functions, mean value theorems and Taylor series, indeterminate forms, line integrals, Green's and Stokes's theorems, vectors,

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definition of analytic functions of a complex variable, poles and residues, evaluation of definite integrals, the Gamma function and related definite integrals.

3 hours. *Professor Rosenthall*

Texts: Franklin, *Methods of Advanced Calculus* (McGraw-Hill); R. V. Churchill, *Introduction to Complex Variables and Applications* (McGraw-Hill).

334. DIFFERENTIAL EQUATIONS (Full course). Solution of ordinary differential equations by means of operators, series and iteration methods; boundary value problems and orthogonal functions; introduction to partial differential equations; solution of partial differential equations of mathematical physics by use of Fourier series and integrals; Bessel functions, Legendre polynomials and applications.

3 hours. *Professor Fox*

Texts: F. B. Hildebrand, *Advanced Calculus for Engineers* (Prentice-Hall); R. V. Churchill, *Fourier Series and Boundary Value Problems* (McGraw-Hill); F. H. Miller, *Partial Differential Equations* (Wiley).

342. ALGEBRA (Full course). Number systems of algebra, introductions to basic algebraic systems such as groups, rings, fields, theory of matrices, projective geometry, linear algebras, linear programming.

The first term of this course, designated as 342a, will be taken as a separate half-course by students in Honours Mathematics and Physics.

3 hours. *Professor Zassenhaus*

Texts: Birkhoff and MacLane, *Survey of Modern Algebra* (Macmillan); S. Narayan, *Matrices* (S. Chand).

Reference: Van der Waerden, *Modern Algebra 1* (Ungar).

Fourth year

438b. ADVANCED PROBABILITY AND MATHEMATICAL STATISTICS (Half course). Averages, measures of dispersion, probability functions, frequency distributions, comparison of distributions, correlation, sampling, goodness of fit. tests of significance.

Second term: 3 hours. *Professor Narayana*

Prerequisites: Mathematics 224 or 225, 337, 339.

Text: Hoel, *Mathematical Statistics* (Wiley).

(*Not given in 1957-58*)

441. MATHEMATICAL PHYSICS (Physics 41) (Fac. Eng. 1390) (Full course). Vibration problems, eigenfunctions and eigenvalues, sound waves, scattering problems. Fourier transforms and application to problems of heat conduction and diffusion. Introduction to relativity and wave mechanics.

3 hours. *Professor Wallace*

Texts: Joos, *Theoretical Physics* (Blackie); Lindsay, *Methods and Concepts in Theoretical Physics* (Van Nostrand).

443. NUMERICAL ANALYSIS (Full course). Finite differences, interpolation formulae, computation of tables in actuarial mathematics, approximate integration, methods of summation, solving of linear equations and linear inequalities by numerical methods.

Use of mathematical equipment (slide rule, desk calculators, integrimeter, analog computer, electronic computers).

2 hours lectures and 3 hours mathematical laboratory.

Professors Zassenhaus and Wood

Texts: H. Freeman, *Mathematics for Actuarial Students* (C.U.P.); F. B. Hildebrandt, *Introduction to Numerical Analysis* (McGraw-Hill).

444. ANALYSIS (Full course). The real number system, continuity and differentiability of functions of a real variable, Riemann integration, infinite series, convergence of integrals, functions of bounded variation, definition of analytic functions and their differentiation, Cauchy integral formula, Taylor and Laurent series, contour integration, theorems of Mittag-Leffler and Weierstrass. Conformal mapping.

3 hours. *Professor Rosenthall*

Texts: W. Rudin, *Principles of Mathematical Analysis* (McGraw-Hill); L. V. Ahlfors, *Complex Analysis* (McGraw-Hill).

446a. FLUID DYNAMICS (Half course). The equations of motion, conservation of energy and circulation, the theory of images, complex potential and conformal transformation methods, especially solutions for vortex arrays and aerofoil theory, Stokes's stream function for three-dimensional solutions, the equations of viscous flow and boundary layer motion.

First term: 3 hours. *Professor Fox*

Texts: Milne-Thomson, *Hydrodynamics* (Macmillan); Ramsey and Besant, *Hydro-Mechanics* (C.U.P.).

446b. MATHEMATICAL THEORY OF ELECTRICITY AND MAGNETISM (Half course) Basic theory of electrostatics and steady current theory, using the theory of images and complex potentials; magnetism, magnetic effects of currents and electro magnetic induction, Maxwell's equations, reflection and

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refraction of waves; rectangular wave guide propagation; dipole radiation and antennae.

Second term: 3 hours.

Text: Slater and Frank, *Electro-magnetism* (McGraw-Hill).

(Not given in 1957-58)

448b. ADVANCED DYNAMICS (Half course). General formulation of Lagrangian dynamics, Hamiltonian equations. Least action principle. Canonical transformations. Poisson brackets. Hamilton-Jacobi theory. Introduction to special relativity in classical mechanics.

Second term: 3 hours. *Professor Sharp*

Text: Goldstein, *Classical Mechanics.*

449a. TENSOR ANALYSIS. Covariant and contravariant tensors and their laws of transformation, the fundamental tensors. Covariant and contravariant differentiation. The Riemann-Christoffel Tensor and the Bianchi identities, applications to geometry, classical dynamics, and the theory of Relativity. Four-dimensional space-time, Einstein's law of gravitation and the Schvarzschild solution.

Second term: 3 hours. *Dr. Kumar*

Text: B. Spain, *Tensor Analysis* (Oliver and Boyd).

450. THEORY OF LIFE CONTINGENCIES (Full course). Theory of interest. Mortality tables, statistical applications of the mortality table, single and multiple probabilities of life and death, single-life annuities and assurances, current valuation methods, including the Full Preliminary Term Method and the Commissioner's Reserve Valuation Method.

3 hours. *Professor Wood*

Prequisites: Mathematics 224, 337, 339 (which may be taken concurrently).

Text: C. W. Jordan, *Life Contingencies* (Society of Actuaries).

SUMMARY OF ORGANIZED COURSES OF STUDY

The following courses of study are designed to give students the maximum opportunity of entering various fields in which mathematical training is fundamental. Attention is particularly called to opportunities in: research in Pure and Applied Mathematics; teaching in Universities and High Schools; applications to engineering and the physical and biological sciences; statistical work in industry and government departments; actuarial work in insurance companies.

(a) Continuation Courses for the General Degree.

These are courses 224, 332, 337, 436, 439. (See pages 1104 to 1106.)

(b) General Degree with Special Distinction in Mathematics.

The prescribed courses are:

Second year: Mathematics 225, 226.

Third year: Mathematics 227, 333.

Fourth year: Any two Mathematics Honours courses of the Third and Fourth years for which prerequisite requirements are satisfied.

This course of study may be combined with any combination of other subjects which satisfy the normal requirements for the General Degree.

HONOURS COURSES

(c) Honours in Mathematics. (New Course—to begin, 1957).

Prerequisite: High standing in First year mathematics.

Second year: 225, 226, 227, 335a, b, P24, 25, and one other approved course, neither mathematics nor physics, may be added as an extra.

Third year: 333, 334, 331a, b, 342, and one other approved course, normally neither mathematics nor physics.

Fourth year: 444, and the equivalent of two full courses from 439, 441, 443, 446a, 448b, 449a, 450 and two other approved courses, normally neither mathematics nor physics.

Students who are now in the Third or Fourth year will consult the Chairman and proceed under the former regulations.

Ordinary students who intend to pursue a course in **Actuarial Mathematics** should take:

Mathematics 216, 224 in their Second year,
Mathematics 337, 436 in their Third year,
Mathematics 439, 443 in their Fourth year,

and should consult the Chairman of the Department.

(d) Honours in Pure and Applied Mathematics.

Prerequisite: High standing in first year mathematics and physics.

Second year: 225, 226, 227, 228a, P23X, P24, P25.

Third year: 333, 334, 439, Physics 31, 34.

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Fourth year: 441, 342, 444, 446a, Mathematics 446b or Physics 42 Mathematics 448b, 449b.

JOINT HONOURS COURSES

(e) Honours in Economics and Mathematics. See under Department of Economics.

(f) Joint Honours in Mathematics and Philosophy.

Second year: Mathematics 225, 226, 227. Philosophy 200.

Third year: Mathematics 333, 334, Philosophy 310, 350, 360.

Fourth year: Mathematics 342, 444, Philosophy 350 or 360, 410.

In the Second year one elective will be chosen in consultation with the joint Departments.

Students *may* also be asked to take a seminar course in Philosophy.

(g) Honours Course in Mathematics and Physics.

Prerequisite: High standing in First year mathematics and physics.

Regular Course

Second year: Mathematics 225, 226, 227, Physics 23, 24, 25. One other approved course may be added as an extra.

Third year: Mathematics 333, 334, Physics 31, 32, 33, 34, 35a, 36.

Fourth year: Mathematics 441, 342a, 444, 446a or 448b, Physics 42, 43, 44b, 48.

Applied Mathematics Option

Second year: As in regular course above.

Third year: Mathematics 228a, 333, 334, Physics 31, 33, 34, 35a, 36.

Fourth year: Mathematics 441, 342a, 444, 446a, 448b, 449b, Physics 42, 43, 44b.

Note—Mathematics 331 = Physics 31 and Mathematics 441 = Physics 41.

Students intending to proceed later with advanced or graduate training in Meteorology may, with the approval of the departments concerned, substitute courses 414a, 414b Meteorology, in the Department of Geography (see page 1082) instead of one full or two half courses in Fourth year Mathematics.

It is recommended that a reading knowledge of scientific French and German be acquired before the end of the Fourth year, in courses (*c*), (*d*), (*f*), and (*g*) above.

(h) Engineering Physics.

This course, leading to a B.Eng. degree, is fully described in the Announcement of the Faculty of Engineering.

See also Engineering option in Honours Mathematics and Physics, as given on page 1128.

(i) Courses in the Faculty of Engineering.

These are described in detail in the Announcement of the Faculty of Engineering.

MEDAL

Attention is drawn to the Ann Molson Gold Medal, awarded annually.

GRADUATE COURSES IN PURE AND APPLIED MATHEMATICS

Organized courses of study are available for graduate work leading to a Master's degree. Details are available in the Announcement of the Faculty of Graduate Studies and Research.

MUSIC

MEMBERS OF THE FACULTY OF MUSIC

The courses in Music are open to those who have the qualifications for the regular courses of Music given in the Faculty of Music. The following courses may be taken as electives in the Faculty of Arts and Science. The first course of Music is for those who have offered Music as a Matriculation subject.

1. FIRST YEAR (Full course).

Harmony 101 (Faculty of Music)

Three hours.

An elementary course in written and keyboard harmony comprising a study of the following harmonic materials and techniques:

Triads and dominant seventh chords in all dispositions and inversions; principles of chord progression; part-writing drills; study of the conventional harmonic formulas and cadences; harmonic analysis; harmonization of melody and bass (unfigured) in Bach chorale style using

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triads, dominant seventh chords and elementary modulations; improvisation of short chorale melodies and of short harmonic progressions.

Texts: McHose, Basic Principles of the Techniques of 18th and 19th Century Composition (Chs. 13-31); McHose, Keyboard and Dictation Manual (Chs. 1-9).

Students will also be required to devote three hours weekly to aural training.

2. SECOND YEAR (Full course).

History and Analysis 101 (Faculty of Music).

Four hours.

3. THIRD YEAR (Full course).

History and Analysis 201 (Faculty of Music).

Four hours.

Music of the Classical and Romantic Periods. A comparative study of selected masterworks of both periods aimed at a definition of the classical-romantic anthithesis in terms of musical styles.

Texts: Lang, Music in Western Civilization; Boyden, An Introduction to Music.

4. FOURTH YEAR (Full course).

History and Analysis 301 (Faculty of Music).

Fours hours.

Music of the Renaissance and Baroque periods. A study of the style and character of Renaissance and Baroque music considered both autonomously and in relation to the intellectual and aesthetic currents of these periods. The course will include detailed analysis of contrapuntal forms.

Texts: Apel and Davison, Historical Anthology of Music, Vol. 2; Bukofzer, Music in the Baroque.

PHILOSOPHY

Professors	T. G. HENDERSON, *Chairman*
	RAYMOND KLIBANSKY
	J. W. MILLER
Associate Professor	CECIL CURRIE
Assistant Professor	ALASTAIR MCKINNON
Sessional Lecturers	S. MCCALL
	J. D. ROSS

GENERAL COURSES

200. INTRODUCTION TO PHILOSOPHY. Second year (Full course).

An introduction to the chief problems of Philosophy in connection with their development in Greek, mediaeval, and modern times.

Lectures: 2 hours. *Professors Henderson and Miller*

Conference groups: 1 hour. *Professors Currie and McKinnon; Mr. McCall and Mr. Ross*

Reading: *Socratic Dialogues* (Nelson); *Descartes* (Nelson); *Hume* (Nelson); James, *Pragmatism* (Meridian).

300. ETHICS. Second year (Full course).

The main types of ethical theory.

Lectures and conferences: 3 hours. *Professor McKinnon*

Reading: Plato, *Republic;* Hobbes, *Leviathan;* Butler, *Fifteen Sermons;* Kant, *Fundamental Principles of the Metaphysic of Morals;* Mill, *Utilitarianism;* Lewis, *Ground and Nature of the Right.*

310. LOGIC AND SCIENTIFIC METHOD (Full course).

Deductive logic: introduction to modern symbolic logic with emphasis upon applications. Inductive logic and scientific method: verification, probability, hypothesis, and related topics.

3 hours. *Professor Miller*

Textbook: Miller, *Exercises in Introductory Symbolic Logic.*

Prerequisite: Philosophy 200, or consent of lecturer.

320. AESTHETICS (Full course). A philosophical treatment of certain problems in the spheres of art and criticism. Among the subjects discussed will be: the nature of aesthetic experience and of the artistic object; the interpretation of a work of art; artistic form; the criteria of aesthetic value. Illustrations and examples will be drawn from a variety of different arts, including music and poetry.

3 hours. *Mr. McCall and Mr. Ross*

Prerequisite: At least one full course in philosophy. With the consent of the lecturers, certain students may be permitted to take this course without this requirement being fulfilled.

Reading: R. G. Collingwood, *The Principles of Art;* H. Osborne, *Aesthetics and Criticism;* S. Langer, *Feeling and Form.*

330. PHILOSOPHY OF RELIGION (Full course). A discussion of the main problems of the philosophy of religion as considered in the works of various philosophers.

3 hours. *Professor McKinnon*

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Reading: Anselm, *Monologium* and *Proslogium* (Open Court); Aquinas, *Selected Writings* (Everyman's Library); Pascal, *Pensées* (Everyman's Library); Hume, *Dialogues Concerning Natural Religion* (Nelson); Kant, *Selections* (Scribner's); Kierkegaard, *Philosophical Fragments* Princeton); Bergson, *Two Sources of Morality and Religion* (Doubleday).

Prerequisite: Philosophy 200.

HISTORICAL

350. GREEK PHILOSOPHY. Third and Fourth years (Full course). The theory of knowledge and metaphysics of Plato and Aristole, with special reference to Plato's *Phaedrus*, *Ion Symposium*, *Republic* (Books V-VII) *Theaetetus*, and *Timaeus;* and Aristole's *Physics*, *Metaphysics*, *De Anima*, and *Poetics*.

3 hours. *Professor Henderson*

Prerequisite: Philosophy 200 or 300, except for students in Honours courses in Greek.

Reading: The Dialogues of Plato (Random House); *Introduction to Aristotle* (Modern Library).

360. MODERN PHILOSOPHY (Full course). Modern philosophers from Bacon to Kant.

3 hours. *Professor Currie*

Prerequisite: Philosophy 200.

Reading: Bacon, *Novum Organum;* Locke, *Essay Concerning Human Understanding;* Berkeley, *Principles of Human Knowledge;* Spinoza, *Ethics*, Books I and II; Leibniz, *New Essays*, and other writings; Hume, *Dialogues Concerning Natural Religion*, *Treatise of Human Nature*, Book I; Kant, *Prolegomena to Any Future Metaphysics.*

370. MEDIAEVAL AND RENAISSANCE PHILOSOPHY (Full course). Main problems of mediaeval philosophy in their development from Plotinus and St. Augustine to the Fifteenth Century, with special reference to Boethius, Scotus Eriugena, Anselm, Abailard, the School of Chartres, St. Thomas, Master Eckhart, Duns Scotus, William of Ockham, Nicholas of Cues, Marsilio Ficino, and Pico della Mirandola.

Reading: St. Augustine, *Confessions* (Loeb Library), and *City of God* (Everyman's Library, London 1945); Boethius, *The Consolation of Philosophy* (Garnier); selections from *Mediaeval Philosophers, vols. I-II* (Modern Student's Library, Scribner's).

3 hours. *Professor Klibansky*

Prerequisite: Philosophy 200; or consent of lecturer.

SYSTEMATIC AND ADVANCED COURSES

400. ETHICS AND PHILOSOPHY OF POLITICS (Full course).

Reading: (1) Aristotle, *Nicomachean Ethics.*

(2) Plato, *Crito, Gorgias, Republic, Statesman;* Aristotle, *Politics;* Thomas Aquinas, selected portions from the *Summa Theologica* and the *Summa contra Gentiles;* Machiavelli, *The Prince* and *Discourses* (New York 1940); Locke, *The Second Treatise of Civil Government,* and *A Letter on Toleration* (Oxford 1946); Kant, *Perpetual Peace;* Hegel, *Philosophy of History* (Scribner) and *Philosophy of Right* (Oxford 1942); Mill, *On Liberty* and *Considerations on Representative Government* (Oxford 1946); M. Oakeshott, *The Social and Political Doctrines of Contemporary Europe* (Cambridge 1944).

3 hours. *Professors Miller and Klibansky*

Prerequisite: Philosophy 300. Honours students from other departments may be admitted with the consent of the lecturers.

410. PROBLEMS OF LOGIC, EPISTEMOLOGY, AND METAPHYSICS (Full course).

(*a*) An examination of fundamental problems of logic, theory of knowledge, and metaphysics will be made on the basis of selected readings in the works of Kant, Husserl, Cassirer, as well as of Russell and some other contemporary authors.

(*b*) The philosophy of Whitehead.

3 hours. *Professors Klibansky and Henderson*

Prerequisites: Philosophy 200, 310 or 350 or 360.

420. SEMINAR ON THE PHILOSOPHY OF KANT (Full course)

3 hours. *Professor Currie*

1957-58: Kant's Theory of Knowledge

Reading: Kant, *The Critique of Pure Reason* (trans. N. K. Smith).

(*1958-59:* Kant's Theory of Morals, Politics and Religion)

440. SEMINAR ON PHILOSOPHY—I (Full course).

Subject for 1957-58: Issues in Contemporary Philosophy.

3 hours. *The Staff*

Reading: to be announced.

Prerequisites: See note following course 450.

450. SEMINAR ON PHILOSOPHY—II (Full course).

Philosophy of History.

3 hours. *Professor Klibansky*

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An examination of the nature of historical knowledge. Basic concepts and their philosophical implications. The logical and metaphysical character of modern interpretations of the meaning of history.

(*Not given in 1957-58*)

Prerequisites: The above seminar courses are open to Fourth year Honours and Graduate students; or may be taken with special consent of the lecturer.

HONOURS COURSES

Full Honours students will take at least the following courses:

Second year: Philosophy 200, (300).

Third year: Philosophy, 300, 310, 350 and 360.

Fourth year: Philosophy, 400, 410 and 420.

Full Honours students are advised to take Philosophy 200 and 300 in the Second year.

At the conclusion of the Fourth year, there is a comprehensive examination on the total work done in the field of Philosophy, which will take the place of examinations in the courses of that year. For Full Honours students the examination will consist of three papers; one in the history of philosophy, one in ethics, and one in systematic philosophy (logic, epistemology, and metaphysics). Students pursuing a Joint Honours course will take two of the papers, the selection being made in accordance with the combined subject-matter of their course of study. The examination will presume a knowledge of the major classical works in each of these fields, some of which may not be dealt with in any lecture course or seminar.

JOINT HONOURS

The following courses in Joint Honours may be taken:

Economics and Philosophy (see under Department of Economics and Political Science).

English and Philosophy (see under Department of English).

French and Philosophy (see under Department of Romance Languages).

German and Philosophy (see under Department of German).

Greek and Philosophy (see under Department of Classics).

History and Philosophy (see under Department of History).

Latin and Philosophy (see under Department of Classics).

Mathematics and Philosophy (see under Department of Mathematics).

Philosophy and Political Science.

2nd year: Philosophy 200 and 300, Political Science 211H, Economics 211H (*Note:* Philosophy 300 may be taken in the Third year if desired).

3rd year: Philosophy 350 or 360, Political Science 311.

4th year: Philosophy 350 and 360 (whichever not taken before), Philosophy 400, Political Science courses 353b, 351, and 411a.

At the end of the Fourth year students taking Joint Honours in Philosophy and Political Science will write a Final Honours Comprehensive Examination consisting of the following papers:

Ethics and Political Philosophy,

The History of Philosophy,

Major Paper in Political Science,

Special Subject in Political Science.

CONTINUATION COURSES

Students interested in studying Philosophy in conjunction with other subjects are advised to take their selected courses in Philosophy in the sequences indicated below in connection with the other studies.

1. Philosophy with one or more studies in the social sciences, e.g., economics, history, politics, psychology, and sociology:

Philosophy 200, 300, 310, 330, 350, 400.

2. Philosophy, with one or more studies in the natural sciences, e.g., biochemistry, botany, chemistry, genetics, physics, zoology:

Philosophy 200, 310, 360, 410.

3. Philosophy with studies in English or Foreign Literature:

Philosophy 200, 300, 320, 330, 350, 360.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

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PHYSICS

Professors — G. A. Woonton, *Chairman*; J. S. Foster; J. S. Marshall

Associate Professors — R. E. Bell; K. L. S. Gunn; W. M. Martin; Anna I. McPherson; E. R. Pounder; F. R. Terroux; H. G. I. Watson

Assistant Professor — W. F. Hitschfeld

Lecturers — M. L. de Angelis; C. R. Crowell; T. W. R. East; E. J. Stansbury; W. M. Telford

FIRST YEAR COURSES*

11. GENERAL COURSE (Full course). A general course covering the elementary portions of mechanics, sound, heat, magnetism, electricity, light, and atomic physics. Simple applications of fundamental principles to well known phenomena are explained with the aid of demonstrations, laboratory work, and numerical examples.

3 hours. *Professors Gunn and Hitschfeld*

Laboratory (11L): 2 hours *Professor McPherson and Demonstrators*

Texts: Mendenhall, Eve, Keys, and Sutton, *College Physics* (Heath); *An Elementary College Course in Experimental Physics* (Renouf).

111. MECHANICS AND ELECTRICITY (Fac.Eng.1311) (Full course).** An introductory course covering the elementary portions of mechanics, magnetism, electricity, and atomic physics. Simple applications of

*These courses may be taken in the Second or Third years by *B.A.* or *B.Com.* students provided that their timetables permit.

**Physics 111 along with Physics 22a and Physics 22b constitute a two-year survey course. Physics 111 is intended to be taken only by students who plan no further courses in Physics after Physics 22a and 22b. All other first year students should register for Physics 11.

fundamental principles to well known phenomena are explained with the aid of demonstrations, laboratory work, and numerical examples.

3 lectures per week, session.* *Professors Martin and Bell*

Laboratory, 2 hours per week, session. *Professor McPherson*

Texts: Marshall & Pounder, *Physics* (Macmillan); *An Elementary College Course in Experimental Physics* (Renouf Publishing Co.)

SECOND YEAR COURSES†

22a. HEAT (Fac. Eng. 1320) (Half course). Temperature, kinetic theory, heat engines, throttling, evaporation hygrometry, heat transfer, radiation, and expansion.

First term: 3 hours. *Professor Marshall and Dr. Stansbury*

Laboratory (22aL): 2 hours.

Professors Terroux and McPherson and Demonstrators

Prerequisite: Physics 11.

Texts: Marshall & Pounder, *Physics* (Macmillan), *Heat, Light and Sound Laboratory Manual* (Renouf).

22b. SOUND AND LIGHT (Fac. Eng. 1322) (Half course). Simple harmonic motion, waves, interference, moving sources, diffraction, vibrating systems, intensity level, audibility, musical scales, and acoustics. Waves and rays, lenses and mirrors, aberrations, the eye, optical apparatus, illumination, interference, polarized light. The wave theory developed in sound is used for light.

Second term: 3 hours. *Professor Marshall and Dr. Stanbury*

Laboratory (22bL): 2 hours.

Professors Terroux and McPherson and Demonstrators

Prerequisite: Physics 11.

Texts: Marshall and Pounder, *Physics* (Macmillan); *Heat, Light and Sound Laboratory Manual* (Renouf).

23. ELECTRICITY AND MAGNETISM (Fac. Eng. 1340, 1344) (Full course). The fundamentals of magnetism, electrostatics, current electricity, electromagnetic induction, electrodynamics, theory of simple circuits,

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*Voluntary tutorials are provided to assist students in 111.

†Courses 22, 23, 24 or 25 may be taken by B.A. or B.Sc. students (general course) in their Third year provided that their timetables permit. Courses 23, 24, or 25 may be taken by B.A students in their Fourth year provided that their timetables permit.

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elementary electronics. Demonstrations, applications, and numerical examples are emphasized. The laboratory course is essential and complementary to the lectures, illustrating main principles and providing a thorough introduction to the theory and use of common electrical apparatus.

2 hours and one tutorial — *Professor Pounder and Dr. Crowell*
or 2 hours and 23H* — *Professor Watson*

Laboratory (23L) 3 hours.
Professors Pounder and Watson and Demonstrators

Prerequisite: Physics 11. Mathematics 224 or 225 to be taken concurrently.

Text: Ward, *Introduction to Electrical Engineering* (Prentice-Hall).

Reference books: Signal Training Manual, Vol. II, Part I, Electricity and Magnetism (H.M. Stationery Office); Page, *Lessons in Electricity* (Macmillan); Brown, *Electricity and Magnetism* (Holt); Starling, *Electricity and Magnetism* (Longmans Green); Sears, *Electricity and Magnetism* (Addison-Wesley). Shortley and Williams, *Physics Vol. II* (Prentice-Hall).

23X. ELECTRICITY AND MAGNETISM (Half course). Same as course 23 without laboratory work.

2 hours and 1 tutorial. — *Professor Pounder*

(*Note:* This course, without laboratory, may be taken by Third year Honours students in Chemistry, at the request of the Chemistry Department.)

24. DYNAMICS (Half course). Kinematics, vectors, motion under gravity, laws of motion, applications, impulse, work and energy in linear motion and rotation, projectiles, collision of elastic bodies, normal accelerations, simple harmonic motion, wave motion, pendulum, moments of inertia. Students are required to work a large number of problems. (Elementary applications of calculus are included.)

First term: 1 hour. Second term: 2 hours. — *Professor Terroux*

Prerequisite: Physics 11.

Text: Loney, *Statics and Dynamics* (C.U.P.).

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*In the case of Honours students, the tutorials are replaced by supplementary lectures (23H) on the more advanced parts of this course, including, in particular, the properties of electric and magnetic fields. (No examination is required on this part of the course.)

25. STATICS AND HYDROSTATICS (Half course). Statics of particles and rigid bodies acted on by forces in one plane, centre of gravity, friction, funicular polygon, virtual work. Fluid pressure, specific gravity, centre of pressure. Hooke's law and elements of elasticity, bending of beams and struts. Solutions of numerous problems by graphical and analytical methods required. (Elementary applications of calculus are included.)

First term: 2 hours. Second term: 1 hour. *Professor Hitschfeld*

Prerequisite: Physics 11.

Text: Short, *Elementary Statics* (Oxford University Press).

27b. ASTROPHYSICS. (Half course). Elementary review of the determination of the positions, sizes, motions and temperatures of the stars. Spectroscopy as applied to the problems of astrophysics. Practice measurements and analysis of typical stellar spectrograms.

Second term: 2 hours, laboratory (27L): 2 hours. *Professor McPherson*

Prerequisite: Physics 11.

Reference books: Russel, Dugan and Stewart, *Vols. I, II, Astronomy* (Ginn); Aitken, *The Binary Stars* (Univ. of California Pub.)

THIRD YEAR COURSES*

31. STATICS, DYNAMICS OF A PARTICLE, AND RIGID DYNAMICS (Mathematics 331.) (Fac. Eng. 1368) (Full course).

(*a*) Dynamics of a particle in one and two dimensions, motion of pair of particles, introduction to dynamics of rigid bodies, mass systems.

First term: 3 hours. *Professor Terroux*

Texts: Lamb, *Statics* (C.U.P.); Lamb, *Dynamics* (C.U.P.).

Reference books: Synge and Griffith, *Principles of Mechanics* (McGraw-Hill); Slater and Frank, *Mechanics* (McGraw-Hill). Lindsay, *Physical Mechanics* (Van Nostrand).

(*b*) Central orbits and scattering problems. Lagrangian and Hamiltonian equations. Rotations. Motion of rigid bodies, principal axes and moments of inertia. Normal modes of vibration and characteristic

*Courses 31 to 35 may be taken by qualified general course students in the fourth year, if timetable permits. General course students of the Third and Fourth years may attend courses 31, 33, or 34, *only* if they have obtained at least second class standing in the respective prerequisites to these courses.

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frequencies of oscillating systems, with applications to atomic and molecular physics.

Second term: 3 hours. *Professor Charles Fox*

Text: Slater and Frank, *Mechanics* (McGraw-Hill).

Reference books: Goldstein, *Classical Mechanics* (Addison Wesley); Corben and Stehle, *Mechanics* (Wiley).

Prerequisite to both parts: Physics 24, 25; Mathematics 225.

32. PROPERTIES OF MATTER (Fac. Eng. 1366) (Half course). The standard properties of matter—elasticity, gravitation, surface tension and viscosity—are studied in both lectures and laboratory. A few lectures are devoted to errors in measurement and their treatment.

1 hour; laboratory (32L): 3 hours. *Professor Gunn*

Prerequisite: Physics 11, 24, 25; Mathematics 224 or 225.

Reference books: Smith, *General Properties of Matter* (Arnold); Newman and Searle, *General Properties of Matter* (Benn); Beers, *Introduction to the Theory of Error* (Addison-Wesley).

33. ELECTRONICS CIRCUITS AND INSTRUMENTS (Half course). Theory and application of electronic devices with emphasis on the instruments used in scientific research.

1 hour; Laboratory (33L), 2 hours. *Professor Bell*

Prerequisite: Physics 23.

Reference Books: Cruft Laboratory Staff, *Electronic Circuits and Tubes* (McGraw-Hill); Reich, *Theory and Application of Electron Tubes* (McGraw-Hill); Valley and Wallman, *Vacuum Tube Amplifiers* (McGraw-Hill); Chance et al., *Waveforms* (McGraw-Hill).

34. HEAT AND THERMODYNAMICS (Fac. Eng. 1342) (Full course). Thermodynamic systems and variables. The zeroth, first and second laws. The thermodynamics of: heat engines; two-phase systems, including a statement of the third law; thermoelectricity; Joule-Thomson effect; thermionic emission; thermal radiation. Kinetic theory of gases, introduction to statistical mechanics.

2 hours. *Professor Hitschfeld*

Prerequisites: Physics 22a and Mathematics 224 or 225.

Text: Sears, *Introduction to Heat, Thermodynamics, Kinetic Theory and Statistical Mechanics* (Addison-Wesley)

Reference books: Zemansky, *Heat and Thermodynamics* (McGraw-Hill); Hoare, *Textbook of Thermodynamics* (Longmans Green); Sir James Jeans, *Kinetic Theory of Gases* (C.U.P.); Worthing and Halliday, *Heat* (Wiley).

35a. ELECTRON PHYSICS (Fac. Eng. 1362) (Half course). Charge and mass of the electron. The electron as a constituent of matter: atomic structure; electrons in metals and insulators. Liberation of electrons from matter; thermionic emission, secondary emission, photoelectric emission, ionization processes, electrical discharges in gases. Control of free electrons: electron ballistics, electron optics. Wave characteristics of the electron; electron diffraction. Applied electronics: cathode-ray oscillograph, X-ray tubes, electron microscope, radio-tubes.

First term: 2 hours. *Professor Pounder*

Prerequisite: Physics 23.

Reference books: Stranathan, *The Particles of Modern Physics* (Blakiston); Millman and Seely, *Electronics* (McGraw-Hill); Richtmyer and Kennard, *Introduction to Modern Physics* (McGraw-Hill).

36. ADVANCED LIGHT (Fac. Eng. 1364) (Full Course). The essentials of geometrical and physical optics with advanced laboratory work. Electromagnetic theory, interference, diffraction, polarization, simple spectrum analysis, determination of fine structure of spectral lines, Zeeman effect, theory and use of optical apparatus (e.g., glass and quartz spectographs, Lummer plates, interferometers, and polarimeters).

First term: 2 hours. Second term: 1 hour. Laboratory (36L): 3 hours (session). *Professor McPherson*

Prerequisites: Physics 11, Mathematics 224 or 225.

Reference books: Morgan, *Introduction to Geometrical and Physical Optics* (McGraw-Hill); Robertson, *Physical Optics* (Van Nostrand); Wood, *Physical Optics* (Macmillan); Jenkins and White, *Fundamentals of Optics*, (McGraw-Hill); Hardy and Perrin, *The Principles of Optics* (McGraw-Hill).

FOURTH YEAR COURSES

41. MATHEMATICAL PHYSICS (Mathematics 441) (Fac. Eng. 1390) (Full course). Vibration problems, eigenfunctions and eigenvalues, sound waves, scattering problems. Fourier transforms and application to problems of heat heat conduction and diffusion. Introduction to statistical mechanics and wave mechanics.

3 hours. *Professor P. R. Wallace (Mathematics)*

Prerequisite: Mathematics 333.

Reference books: Margenau and Murphy, *The Mathematics of Physics and Chemistry* (McGraw-Hill); Coulson, *Waves* (Oliver and Boyd); Lindsay, *Concepts and Methods of Theoretical Physics* (Van Nostrand); Joos, *Theoretical Physics* (Blackie); Sommerfeld, *Partial Differential Equations* (Academic Press); Born, *Atomic Physics* (Blackie); Menzel, *Mathematical Physics* (Prentice-Hall).

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42. ELECTROMAGNETIC THEORY (Fac. Eng. 1388) (Half course). Field theory; electrostatics; Laplace's equation; dielectrics; magnetic fields of currents; magnetic materials, electromagnetic induction and Maxwell's equations; electromagnetic waves and energy flow; scalar and vector potentials. Application of these fundamental ideas is made to some of the following topics: skin effect; propagation of waves in conducting media; propagation of guided waves; the electromagnetic foundation of the optical laws of reflection and refraction; diffraction; radiation from antennae.

First term: 2 hours. Second term: 1 hour. *Professor Woonton*

Prerequisites: Physics 23 and Mathematics 333.

Text: Slater and Frank, *Electromagnetism* (McGraw-Hill).

Reference book: Ramo and Whinnery, *Fields and Waves in Modern Radio* (Wiley).

43. ATOMIC PHYSICS (Fac. Eng. 1382) (Full course). Atoms, molecules and quanta; optical spectroscopy and classification of spectral lines; thermal radiation and the origin of the quantum theory; the nuclear atom and the Bohr theory of the hydrogen spectrum; Bohr-Sommerfeld quantization; further details of atomic spectra, the vector model, Zeeman effect; the periodic table; X-rays.

The advent of quantum mechanics, the uncertainty principle, the exclusion principle; the Schroedinger equation and some applications. Molecular spectra; microwave spectroscopy. Some current topics in atomic physics.

2 hours; laboratory (43L), 3 hours. *Professor Martin and Dr. Telford*

NOTE: *The first half of this course, 43a, may be taken as a half course.*

Prerequisite: Physics 35a.

Reference books: Peaslee, *Elements of Atomic Physics* (Prentice-Hall); Richtmeyer and Kennard, *Introduction to Modern Physics* (McGraw-Hill); Sawyer, *Experimental Spectroscopy* (Prentice-Hall); Herzberg, *Atomic Spectra and Atomic Structure* (Dover); Slater, *Modern Physics* (McGraw-Hill).

44b. RADIOACTIVITY. (Fac. Eng. 1392) (Half course.) The phenomena of radioactive disintegration and the laws of transformations of successive products. The nature and properties of the radiations, methods of detection and of measurement. Mechanisms of absorption and scattering. Neutrons, positrons, and the constitution of nuclei. Methods of

producing artificial disintegrations and their products. Introduction to nuclear physics.

Second term: 2 hours; laboratory (44L), held with 43L, second term.

Professor Terroux

Prerequisite: Physics 35a.

Reference books: Rutherford, Chadwick, and Ellis, *Radiations from Radioactive Substances* (C.U.P.); Hevesy and Paneth, *A Manual of Radioactivity* (C.U.P.); Cork, *Radioactivity and Nuclear Physics* (Van Nostrand); Lapp and Andrews, *Nuclear Radiation Physics* (Prentice-Hall); Semat, *Introduction to Atomic and Nuclear Physics* (Rinehart); Kaplan, *Nuclear Physics* (Addison-Wesley).

47a. APPLIED GEOPHYSICS. (Fac. Eng. 1360.) (Half course.) An introduction to geophysical methods of prospecting and of investigating subsurface structure. The theories, the uses, and the limitations of various magnetic, electrical, gravitational, and seismic methods are explained and compared. The practical operation of the instruments is reviewed, and actual field results are obtained and analysed. When possible, students will be given some practical experience in the field. Laboratory facilities are available.

First term: 2 hours. *Professor Watson*

Prerequisite: Physics 23.

Text: Eve and Keys, *Applied Geophysics, 4th ed.* (Cambridge Univ. Press) Dobrin, *Introduction to Geophysical Prospecting* (McGraw-Hill).

Reference books: Heiland, *Geophysical Exploration* (Prentice-Hall); Jakosky, *Exploration Geophysics* (Trija Publishing Company).

48. ELECTRICAL MEASUREMENTS (Fac. Eng. 1384) (Full course). D-C-instruments and measurements, complete galvanometer theory, in. strument calibration; A-C. circuit theory, operational methods, applications; measurements at power, audio, and radio frequencies; measurements with Lecher wires; construction and testing of simple electrical devices; absolute measurements.

First term: 1 hour. Second term: 2 hours. Laboratory 3 hours (session).

Professor Watson and Mr. deAngelis

Prerequisite: Physics 23.

Texts:s Stout, *Basic Electrical Measurements* (Prentice-Hall); Harris, *Electrical Measurements* (Wiley).

Reference books: Law, *Electrical Measurements* (McGraw-Hill); Hague, *Alternating Current Bridge Methods* (Pitman); Harnwell, *Principles of Electricity and Electromagnetism* (McGraw-Hill); Campbell and Childs, *The Measurement of Inductance, Capacitance, and Frequency* (Macmillan).

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HONOURS COURSE IN MATHEMATICS AND PHYSICS

Prerequisite: High standing in First year Mathematics, Physics 11 or 21 or 22. First Year students intending to take this Honours course are advised to take Physics 22 and Mathematics 113, if their time table permits; in this case they should also attend that part of Physics 11 which deals with electricity and magnetism.*

Second year: Mathematics 225, 226, 227a, 227b; Physics 23, 24, 25. (One other approved course may be added as an extra.)

Third year: Mathematics 333, 334; Physics 31, 32, 33, 34, 35a, 36.

Fourth year: Mathematics 342a, 441, 444, 446a or 448b; Physics 42, 43, 44b, 48.

Third and Fourth year Honours students are advised to attend the Physical Society and colloquia.

It is recommended that a reading knowledge of scientific French and German should be obtained before the end of the Fourth year.

OPTIONS IN THE HONOURS COURSE IN MATHEMATICS AND PHYSICS

(1) Applied Mathematics Option

Second year: (As indicated above.)

Third year: Mathematics 228a, 333, 334; Physics 31, 33, 34, 35a, 36.

Fourth year: Mathematics 342a, 441, 444, 446a, 448b, 449b; Physics 42, 43, 44b.

(NOTE:—Physics 31 = Mathematics 331; and Physics 41 = Mathematics 441. "Physics 31" and "Mathematics 441" should, however, be used in all forms and records.)

(2) Engineering Option

Subject to the approval of the Chairmen of the Departments of Physics, Mathematics, and Electrical Engineering, Honours students in Mathematics and Physics who desire some training in Engineering may substitute Electrical Engineering courses 460 and 462 for Physics 32 and 36 in the Third year; these two courses would then be taken in their Fourth year instead of one full or two half Mathematics courses. The summary of the courses for students taking this option would then be as follows:

Third year: Mathematics 333, 334; Physics 31, 33, 34, 35; Electrical Engineering 460, 462.

Fourth year: Mathematics 441, 444; Physics 32, 36, 42, 43, 44, 48.

*Students should refer to the Physics Department Office before registering for Physics 22.

A student taking this option is eligible to receive the B.Sc. degree with Honours in Mathematics and Physics, and in a Fifth year he may proceed towards an M.Sc. degree by taking further courses in Physics and Electrical Engineering.

Note:—The above option corresponds to the course formerly known as the Engineering Physics division of the Honours Course in Mathematics and Physics. See the Announcement of the Faculty of Engineering for data concerning the course in Engineering Physics offered to students in Engineering.

(3) Meteorology Option

Students intending to proceed later with advanced or graduate training in Meteorology, may, with the approval of the departments concerned, substitute Geography 414a, 414b (Meteorology) (see page 1082) for one full or two half courses in Fourth year Mathematics. (Unless otherwise arranged, and also approved by the Mathematics Department, Mathematics 444 would be retained as in the Engineering option given above, but Geography 414 would be taken in the Fourth year and there would be no change in the Third year.)

(4) Other Options

Subject to the approval of the departments concerned, other alternative options may be substituted, as in the case above, for one of the Mathematics courses.

JOINT HONOURS

Physics and Geology: See under Department of Geology.

Physics and Physiology:

First year: Mathematics 113; Physics 22; Chemistry 11; Biology 100, English 100, 100C.

Second year: Physics 23, 24; Chemistry 22, 24; Mathematics 225; Anatomy 1a or Zoology 322a.

Third year: Physiology 31, 32; Physics 31, 33, 48; Mathematics 333; Biochemistry 31.

Fourth year: Physics 32, 41, 43, 44b; Physiology 41, 41L.

CONTINUATION COURSES

Second year: Physics 22 or other courses as listed for the Third year, below, by special permission.

Third year: Physics 23, 24, 25, 27b or other courses by departmental permission.

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Fourth year: Physics (32, 35a), (43a, 44b), (35a, 47), (35a, 44b) or other courses by departmental permission.

Students selecting Physics as a Continuation Subject must also select Mathematics 224 or 225, and later (337a, 337b).

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

PHYSIOLOGY

Professors	F. C. MacIntosh, *Chairman*
	A. S. V. Burgen
	H. Garcia-Arocha
Assistant Professors	Simon Dworkin
	Paul Sekelj
	Kathleen G. Terroux
Lecturers	A. L. Johnson
	G. C. Salmoiraghi
	P. B. Stewart
Sessional Lecturers	G. B. Frank
	Norah Hildebrand

200. PHYSIOLOGY. The Biology of Man.
An account of the structure and functions of the human body, from the standpoint of the medical sciences, intended mainly for students who are not speclializing in biology.

3 hours, including demonstrations. *Professor Garcia*

No prerequisites. The course may not be taken earlier than the Second year, and does not count as prerequisite for other courses in Physiology or for Biochemistry 31. A student may not take for credit both Physiology 200 and Physiology 22, or Physiology 200 and Biology 100.

22. ELEMENTARY PHYSIOLOGY. (Full course.) For Second and Third year Arts and Science students and students in the School of Physical and Occupational Therapy and the School for Graduate Nurses. An account of general physiological principles, combined with an introduction to basic techniques, intended primarily for students who will specialize in the biological sciences.

2 hours lecture and three hours laboratory. *Professor Terroux*

Prerequisites: Chemistry 11, Physics 11, Biology 100, Chemistry 22a, and Zoology 221 (the last two may be taken concurrently with Physiology 22).

Text: Bell, Davidson, and Scarborough, Textbook of Physiology and Biochemistry.

31. HUMAN PHYSIOLOGY. (One and one-half courses.) This course is similar to the First year medical course in physiology, but omits lectures on the nervous system and the special senses.

3 hours lecture, 3 hours laboratory, and seminar. *Professor MacIntosh*

Prerequisite: Physiology 22. By special permission, students may be admitted who have completed the prerequisites for Physiology 22 but have not taken that course. The size of the class is limited by laboratory space: priority will be given to Honours students.

32. PHYSIOLOGY OF THE NERVOUS SYSTEM (Half course). The peripheral and the central nervous system, skeletal muscle and neuromuscular transmission, and the special senses.

1 hour, and demonstrations, throughout the session. *Professor Burns*

Prerequisites: As for Physiology 31.

41. ADVANCED GENERAL PHYSIOLOGY (Full course). The action of drugs on tissues; cell structure, permeability, and ion transport; secretory mechanisms.

First term: 3 hours, 8 hours laboratory, and seminar. *Professor Burgen*

Prerequisites: Physiology 31 and 32.

42. ADVANCED MAMMALIAN PHYSIOLOGY (Full course). Circulation, respiration, properties of excitable tissues, nervous system.

Second term: 3 hours, 8 hours laboratory, and seminar. *Professor Burgen*

Prerequisites: As for Physiology 41.

43a. PHYSIOLOGICAL INSTRUMENTATION (Half course).

First term: 2 hours, and 3 hours laboratory. *Professor Sekelj*

Prerequisites: Physiology 31 and 32, Physics 23.

43b. SELECTED TOPICS IN PHYSIOLOGY (Half course).

Second term: 2 hours, and experimental project. *Dr. Salmoiraghi*

Prerequisites: Physiology 31 and 32.

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HONOURS COURSE IN PHYSIOLOGY

Students are normally admitted to Honours at the beginning of the Third year, on the basis of high standing in Physiology 22 and the other prerequisite courses. In exceptional cases, students who have not taken Physiology 22, but have completed the other prerequisite courses, may also be admitted to Honours at the beginning of the Third year: such students will then begin their study of Physiology with Physiology 31 and 32.

First year: Physics 11, Chemistry 11, Biology 100.

Second year: Physiology 22, Zoology 221, Chemistry 22a and b, and either one or two of Chemistry 24, Physics 23, or Mathematics 224.

Third year: Physiology 31 and 32, Biochemistry 31, Physics 23 (if not already taken), and either one or two of Biochemistry 32, Chemistry 24, Mathematics 224, Zoology 322a.

Fourth year: Physiology 41, 42, 43a, and 43b, and two courses from Biochemistry 32, 43, 45, Physics 22, 35a, 44b, Chemistry 24, Zoology 322a, Anatomy 1a, Genetics 44.

JOINT HONOURS COURSE IN PHYSICS AND PHYSIOLOGY: See under Department of Physics.

PSYCHOLOGY

Professors	D. O. Hebb, *Chairman* G. A. Ferguson
Associate Professor	Dalbir Bindra
Assistant Professors	Woodburn Heron W. E. Lambert P. M. Milner M. S. Rabinovitch
Lecturer	Helen Mahut
Sessional Lecturer	Muriel Stern

APPLIED PSYCHOLOGY CENTRE

Professor	E. C. Webster, *Director*
Assistant Professors	W. N. McBain E. G. Poser
Lecturers	Georges Dufresne Blossom Wigdor

Students interested in applied psychology (industrial, clinical, vocational guidance, etc.) should note that the undergraduate curriculum is not sufficient to prepare them for professional work. They will need an Honours degree or its equivalent, followed by a year at least of graduate study. Such students should consult Dr. Webster in planning their undergraduate course.

21. INTRODUCTION TO PSYCHOLOGY. Second year. (Full course.) A biologically oriented outline of the modern approach to psychology.

2 hours and one weekly conference. *Professors Hebb and Bindra*

Prerequisite to all further courses in Psychology except Course 22.

22a or b. PSYCHOLOGICAL STATISTICS. Second or Third year. (Half course.) The statistical analysis of psychological data; frequency distributions; graphic representation; measures of central tendency and variability; elementary probability theory; the normal probability curve; simple correlation methods; elementary sampling theory and tests of significance.

First and second terms: 3 hours.

31a. PHENOMENA OF PERCEPTION AND LEARNING. Third or Fourth year. (Half course.) Introduction to laboratory instruments and procedures in which the student will investigate established phenomena of perception and learning.

First term: 1 hour; 4 hours laboratory.

Required of all Third year Honours students; open to general students only with the instructor's consent.

31b. EXPERIMENTAL METHODS (HUMAN). Third or Fourth year. (Half course.) The student will be required to carry out an experimental project in some field of psychological investigation.

Second term: 1 hour; 4 hours laboratory. *Professor Lambert and Staff*

Required of all Third year Honours students; open to general students only with the instructor's consent.

33. DEVELOPMENT PSYCHOLOGY. Third year. (Full course.) The development of human behaviour from early prenatal stages to adolescence, with attention particularly to motor behaviour, language, intelligence, emotion, personality and social behaviour.

3 hours. *Professor Rabinovitch*

34a. THEORY OF MOTIVATION. Third year. (Half course.) Facts and theories of emotion and motivation.

First term: 2 hours and one weekly conference. *Professor Bindra*

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34b. HUMAN MOTIVATION. Third year (Half course). A detailed consideration of the special methods employed in the study of human motivation, and a critical evaluation of current views of normal and abnormal personality.

Second term: 2 hours and one weekly conference. *Professor Bindra*

35a. HUMAN ABILITY. Third year. (Half course.) An introduction to the description and theory of human ability, its correlates and the role of learning and heredity in its formation; factors producing changes in ability; sex, race and socio-economic differences.

First term: 3 hours. *Professor Ferguson*

36. THE COMPARATIVE STUDY OF BEHAVIOUR. Third or Fourth year. (Full course.) An advanced general course, primarily for the student in biology, dealing with such topics as intelligence, motivation, and social behavior in animals, from an evolutionary point of view.

3 hours. *Dr. Mahut*

Prerequisite: Psychology 21, and preferably a course in Zoology.

37. LABORATORY, COMPARATIVE. Third or Fourth year. (Half course.) Laboratory to accompany Course 36. 50 hours laboratory work concentrated at some time during the term, by arrangement with the instructor.

Prerequisite: Psychology 36, and consent of instructor.

42. SOCIAL PSYCHOLOGY. Fourth year. (Full course.) Theories of social psychology; social aspects of general psychology; nature and development of group membership; social attitudes, their measurement and modification.

3 hours. *Professor Lambert*

43. MODERN PSYCHOLOGY IN HISTORICAL PERSPECTIVE. Fourth year and graduate. (Half course.) Modern theoretical issues, and systematic formulations, considered from the point of view of their origins.

1½ hours in both terms. *Professor Milner*

44. EXPERIMENTAL PROBLEMS. Fourth year and graduate. (Half course.) Supervised investigation of a special field. Open to fourth year Honours students.

1½ hours in both terms. *Professor Hebb*

46a. PHYSIOLOGICAL PSYCHOLOGY. Third or Fourth year. (Half course.) The relationship of behaviour to the nervous system, particularly with regard to the effect of modern neurophysiological conceptions on psychological theory.

First term: 3 hours. *Professor Heron*

Text: Morgan and Stellar, *Physiological Psychology.*

46b. PHYSIOLOGICAL BASIS OF PERCEPTION. Fourth year and graduate. (Half course.) Consideration of auditory, tactual, and visual phenomena in relation to current knowledge of neural processes.

Second term: 3 hours. *Professor Heron*

47a. INDUSTRIAL PSYCHOLOGY. Fourth year. (Half course.) A critical survey of the applications of psychology to business and industry, with particular reference to the empirical bases of personnel selection and training.

First term: 3 hours. *Professor McBain*

Prerequisites: Psychology 21; Psychology 35a and 22b, or another full course. (The student who lacks Psychology 22a or b must have some knowledge of the statistics of the correlation.)

Text: Ghiselli & Brown, *Personnel and Industrial Psychology* (2nd ed.).

47b. HUMAN RELATIONS IN BUSINESS AND INDUSTRY. Fourth year. (Half course.) An introduction to the study of interpersonal relations, with illustrations drawn from business; discussion of alternative ways of describing and understanding human interaction.

Second term: 3 hours. *Professor McBain*

Prerequisites: Two previous full courses in psychology.

51. METHODS OF TEST CONSTRUCTION. Fourth year and graduate. (Half course.) Methods of measurement, reliability, validity, item analysis, etc.

1½ hours in both terms. *Professor Webster*

HONOURS COURSES

Admission to Honours will normally take place at the beginning of the Third Year, and be determined by the student's standing in Psychology 21, 22a or 22b, and in related subjects. If Psychology 22a has not been taken in the Second year, this deficiency must be made up immediately.

Granting of Honours will not depend on high marks alone, nor on taking a large number of courses in psychology, but on the student's comprehension of psychological principles, knowledge of related fields, and his ability to express himself well. Honours standing will therefore be determined (a) by a comprehensive examination, (b) by a short thesis which will be judged for adequacy of presentation as well as content, and (c) by course standing.

In each of their Third and Fourth years, Honours students will normally take two and a half courses in Psychology and the balance in related fields, including Philosophy as well as the Social and Biological Sciences. For the B.Sc. student a course in Physiology is required, and the prerequisites for it should be taken in the first two years. The B.A. student may take a sequence of Social-Science courses, approved by the Department, in place of Physiology.

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CONTINUATION COURSES

Second year: Psychology 21, 22a or 22b.

Third year: *B.A. students:* Psychology 33, 34b, 35a; *B.Sc.*, Psychology 34a, 34b, 36, 37.

Fourth year: *B.A. students:* Psychology 42, 43, 47a, 47b; *B.Sc.*, 43, 46a, 46b.

RELIGION

MEMBERS OF THE FACULTY OF DIVINITY

Four courses in biblical literature, the philosophy of Christianity, and comparative religion are now open to B.A. and B.Sc. students in the Third and Fourth years.

RELIGION 1a—BIBLICAL LITERATURE. Third or Fourth year. (Half course.) The purpose is to give the student a critical appreciation of the literary and religious content of the Old Testament, seen in relation to the historical circumstances of its origin in the life of Israel and Judaism. In dealing with the religious context, an attempt will be made to avoid any doctrinal or authoritative interpretations.

Second term: three hours. *Professor Frost*

RELIGION 1b—BIBLICAL LITERATURE. Third or Fourth year. (Half course.) An introductory study of the New Testament designed to show the historical beginnings of Christianity in terms of its early expression. The literature will be set in the social and cultural environment of the Graeco-Roman world. The variety of its authorship and composition will be studied in order to show the structure of the Synoptic Gospels, the Pauline and other Epistles, the Johannine Gospel and Epistles. An appreciation will be given of the distinctive cultural values of the various books.

First term: 3 hours. *Professor Caird*

RELIGION 2—THE GROWTH AND MEANING OF CHRISTIANITY. Third or Fourth year. (Full course.) The purpose of this course is to present Christianity as an influence on thought and civilization in terms of its own historical development. Beginning with the life and teaching of Jesus, the more significant stages will be studied, particularly with reference to the Graeco-Roman-Judaic world in which Christianity arose, the influence of St. Augustine, the mediaeval order of life, the rise of modern thought, and the expansion of European civilization, with a discussion of the contemporary relevance of Christian ideas to thought and action.

3 hours.

Texts: The New Testament; R. W. Moore, The Furtherance of the Gospel; G. B. Caird, The Truth of the Gospel; Bettenson, Documents of the Christian Church.

RELIGION 3—RELIGION IN THE ORIENT. Third or Fourth year. (Full course.) An introduction to the great religions of the Orient, with special emphasis on one of them. Each year there will be in the first term, after a brief reference to the religion of pre-historic man and of modern "primitive" societies, a prefatory general survey dealing synoptically with each of the main faiths. In the second term, a fuller historical study will be made of one of the Oriental religions, its teaching, institutions, and cultural achievements, with an attempt to interpret what it means to its adherents. 3 hours. *Professor W. C. Smith*

(N.B. These classes will be conducted in Divinity Hall, 3520 University Street. Students intending to take these classes should inquire at the office of the Dean, Divinity Hall, concerning arrangements.)

ROMANCE LANGUAGES

French Section

Professor	J. E. L. LAUNAY, *Chairman of the Department*
Associate Professor	HÉLÈNE LARIVIÈRE
Assistant Professors	YVONNE CHAMPIGNEUL MICHEL EUVRARD LOUIS D'HAUTESERVE MARIE-THÉRÈSE REVERCHON ANDRÉ A. RIGAULT TADEUSZ ROMER
Lecturers	G. D. JACKSON DOMINIQUE PENOT

Italian Section

Associate Professor	ANTONIO D'ANDREA
Assistant	PAMELA STEWART

Spanish Section

Associate Professor	L. B. HARROP
Assistant Professors	ROBINA E. HENRY G. F. STEGEN
Lecturer	MONICA HARVEY
Assistant	HENRY SANDOVAL

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FRENCH

The Department offers no beginners' courses in French, and French is the only language used in lectures, except in First year composition classes. Students with little knowledge of spoken French will find it necessary to do extra work to acquire some fluency in the language and sufficient aural comprehension. They are advised to attend a session of the French Summer School before enrolling in a regular French class. The French Summer School also offers McGill B.A. students courses which, in certain circumstances, can be counted for credit in lieu of the regular First or Second year courses offered during the winter session. For further information regarding credit courses in the French Summer School apply to the Secretary of the Department.

Both oral and written examinations are held on each year's work.

The oral examination (in both General and Honours courses) counts for 50 per cent.

Students who intend to take Honours in French in their Second year must take a course in Latin or Greek in their First year.

GENERAL COURSES—

FIRST YEAR COURSES

Students registering for First year French have a choice of two courses:

A *French 11 Advanced.*

This course is open to:

(a) students whose first language is French,

(b) those English-speaking students who have obtained at least 80% in their Junior School Certificate or High School Leaving Certificate or the equivalent diploma which secured their admission to the University.

All students who have registered for *French 11 Advanced* will undergo a test at the beginning of the term and those who do not satisfy the requirements will automatically revert to *French 13 Regular.*

B *French 13 Regular.*

This course is designed:

(a) to supplement previous training in oral-aural comprehension, grammar and vocabulary so that students can proceed to further courses with an adequate linguistic equipment.

(b) to teach the basic facts of French civilization which underlie the development of French literature and fine arts.

11. Advanced. GENERAL SURVEY OF FRENCH CIVILIZATION AND LITERATURE OF THE 18TH AND 19TH CENTURIES; French Composition (Full course).

3 hours. *Professors Champigneul, Larivière and Reverchon*

Texts: Bradley and Michell, *Eight Centuries of French Literature* (Appleton-Century-Crofts); Lévèque, *Histoire de la civilisation française* (Revised edition) (Holt); Daudon, *French in Review* (Harcourt, Brace); Husson, *La cuisine des anges* (Harper); Saint-Exupéry, *Vol de Nuit* (Harper).

13. Regular. GENERAL SURVEY OF FRENCH CIVILIZATION (Geography, History, Arts, Science, Economics and Politics); Composition and Review of French Grammar.

3 hours. *Professors Champigneul, Euvrard, d'Hauteserve, Reverchon, Rigault, Romer, Mr. Jackson*

Texts: Bart, *La France carrefour des civilisations* (Harcourt, Brace); Romains, *Deux nouvelles* (Ed. Vial) (Dryden); Sonet-Shortliffe, *Review of Standard French* (Harcourt, Brace).

Students are required to possess a good French-English and English-French Dictionary. Harrap's *Shorter French-English and English-French Dictionary,* ed. by J. E. Mansion, M.A., is recommended.

SECOND YEAR COURSES

21. SURVEY OF FRENCH LITERATURE FROM THE MIDDLE-AGES TO THE 18TH CENTURY. French composition. (Full course.)

3 hours. *Professors Reverchon and Rigault*

Prerequisite: French 11, or permission of the Chairman of the Department.

Texts: Lanson-Tuffrau, *Histoire de la littérature française* (Heath); Bradley-Michell, *Eight Centuries of French literature* (Appleton-Century-Crofts); Molière, *L'Avare* (Petits Classiques Larousse); Whitmarsh-Jukes, *Advanced French Course* (Longmans).

23. INTRODUCTION TO FRENCH LITERATURE FROM THE MIDDLE-AGES TO THE 20TH CENTURY THROUGH THE READING OF REPRESENTATIVE MAJOR WORKS. French composition. (Full course.)

3 hours. *Professors Champigneul, d'Hauteserve, Rigault and Romer; MM. Jackson and Penot.*

Prerequisite: French 13, or the equivalent.

Texts: La Farce de Maître Pathelin; Molière, L'*Avare;* Voltaire, *Zadig;* Balzac, *Le Père Goriot;* Duhamel, *Chronique des Pasquier* (all

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in Petits Classiques Larousse); Whitmarsh-Jukes, *Advanced French Course* (Longmans).

Readings: Molière, *Le bourgeois gentilhomme;* Flaubert, *Trois contes* (both in Petits Classiques Larousse).

THIRD YEAR COURSES

31. FRENCH LITERATURE OF THE 17TH CENTURY (Full course).

3 hours. *Professor Larivière*

Prerequisite: French 21 or 22 or 23.

Texts: Lanson and Tuffrau, *Histoire de la Littérature Française* (Heath); Peyre and Grant, *Seventeenth Century French Prose and Poetry* (Heath); Seronde and Peyre, *Nine Classic French Plays* (Heath).

Readings: Corneille, *Le Cid* and *Horace;* Racine, *Andromaque* and *Phèdre;* Molière, *L'Ecole des Femmes* and *Tartuffe;* Pascal, *Pensées;* Bossuet, *Oraison Funèbre d'Henriette d'Angleterre;* Mme de Sévigné, *Lettres choisies;* La Fontaine, *Fables choisies;* Mme de La Fayette, *La Princesse de Clèves.*

32. FRENCH LITERATURE OF THE 18TH CENTURY (Full course).

3 hours. *Professor Reverchon*

Prerequisite: French 21, 22 or 23.

Texts: Lanson and Tuffrau, *Histoire de la Littérature Française* (Heath); A. Schinz, *Eighteenth Century French Readings* (Holt); Marivaux, *Le jeu de l'amour et du hasard* (Heath); Voltaire, *Candide* (Holt); Beaumarchais, *Le Barbier de Séville* (Holt).

Readings: Lesage, *Gil Blas* (Extraits); Montesquieu, *Les Lettres persanes;* Voltaire, *Les Lettres philosophiques;* Diderot, *Le Neveu de Rameau;* Beaumarchais, *Le Mariage de Figaro;* Rousseau, *Confessions* (Extraits).

FOURTH YEAR COURSES

41. MODERN FRANCE—GEOGRAPHICAL OUTLINE—POLITICAL, SOCIAL, AND ECONOMIC ASPECTS OF FRENCH LIFE, SINCE 1870 (Full course). (*Open also to Third year students with a good command of spoken French.*)

3 hours. *Professor Launay*

As no textbooks are available for this course, an ability to take notes in French is essential.

42. LITERATURE AND SOCIAL IDEAS IN THE 19TH CENTURY (Full course).

Open to Third year students also.

3 hours. *Professor d'Hauteserve*

(*Given in 1958-59*)

43. FRENCH LITERATURE OF THE 19TH AND 20TH CENTURIES.

3 hours. *Professor Euvrard*

Prerequisite: French 31 or 32.

Texts: Galland and Cros, *Nineteenth Century French Verse* (Appleton-Century-Crofts); Musset, *Lorenzaccio* (Petits Classiques Larousse); Balzac, *Le Père Goriot* (Nelson); Flaubert, *Madame Bovary* (Garnier); Zola, *Germinal* (Petits Classiques Larousse); Gide, *La Porte Etroite* (Mercure de France); Castex-Surer, *Manuel des Etudes littéraires françaises: XIXe Siècle* (Hachette).

HONOURS COURSES

22. INTRODUCTORY HONOURS COURSE. Second year (Full course).

(*a*) The French comedy as illustrated by Molière, Beaumarchais, and Musset; (*b*) Special readings in the contemporary French novel; (*c*) Free composition, written and oral, on literary subjects.

3 hours. *Professor Rigault*

With the consent of the Chairman of the Department this course may be taken by General students, instead of French 21.

44a. HISTORY OF THE FRENCH LANGUAGE. Third and Fourth years. To be taken in conjunction with French 44b.

Reference Books: Darmesteter, *Cours de Grammaire historique.* Parts I, II; F. Brunot, *Histoire de la langue française;* Holmes and Schutz, *A History of the French Language* (Farrar & Rinehart).

1 hour. *Professor d'Hauteserve*

44b. FRENCH STYLISTICS. Third and Fourth years (Full course). Thought and Expression—intellectual and affective elements of speech with special reference to synonymy. Social and psychological background of words and phrases. Levels of speech.

2 hours. *Professor Launay*

45. HISTORY OF THE FRENCH NOVEL. Third and Fourth years (Full course).

3 hours. *Professor Launay*

(*Given in 1958-59*)

46. HISTORY OF THE FRENCH LYRICAL POETRY. Third and Fourth years (Full course).

3 hours. *Professor Larivière*

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47. SURVEY OF CONTEMPORARY FRENCH LITERATURE. Third and Fourth years (Full course).

3 hours. *Professor Larivière*

(*Given in 1958-59*)

48. ADVANCED PHONETICS. Third and Fourth years (Half course).

2 hours. *Professor Rigault*

RECOMMENDED COGNATE COURSE

50. LINGUISTICS. Open to Second and Third year students (Full course). An elementary survey of human speech, its nature, origin, structure, and classification; principles of linguistic changes, writing, and the alphabet; universal or auxiliary languages.

3 hours. *Professor C. H. Carruthers (Department of Classics)*

51. ENGLISH 370. Cross-Currents between English literature and the European literature in the 18th century.

A reading knowledge of French is a prerequisite.

3 hours. *Professor S. Klima*

HONOURS COURSES IN FRENCH

Honours in French begin in Second year. Only exceptionally will students be permitted to take Honours Courses in their Third year without having previously passed French 21 or 23, and 22.

All students taking Honours in French are required to take in their Third or Fourth years French 44a, *History of the French Language;* French 44b, *French Stylistics;* and French 48, *Advanced Phonetics.*

Prerequisite: French 11 or 13.

Second year: French 21 or 23, and 22.

Third year: Three full courses (or the equivalent) including at least one full Honours Course.

Fourth year: Three full courses (or the equivalent) including at least one full Honours Course, and courses 44a, 44b, and 48 if not previously taken.

JOINT HONOURS COURSES

B.A. students may combine Honours in French with Honours in any one of the following subjects:

English
German
Latin
Philosophy
Spanish

1. Joint Honours in English and French

See under Department of English.

2. Joint Honours in French and German

First year: French 11 or 13 (or the equivalent) — German 1 (or its equivalent) and 3 other courses

Second year: 2 French courses: 21 or 23, and 22
2 German courses chosen from 5, 7, 8
1 other approved course

Third year: 2½ French courses: 31 and 44(b) or 48 and 45 or 47
2 German courses chosen from: 8, 9, 12, 13, 14

Fourth year: 2½ French courses: 43 and 44(b) or 48 and 45 or 47
2 German courses chosen from 9, 10, 12, 13, 14

3. Joint Honours in French and Latin

First year: French 11 or 13 (or the equivalent)
Latin 21 (or the equivalent)
3 other courses

Second year: 2 French courses: 21 or 23, and 22
2 Latin courses: 21 and 22
1 course chosen from: History 100
Philosophy 200
Linguistics 21

Third year: 2 French courses: 31 and 44 or 45
2 Latin courses: 31 and 32
1 course chosen from: English 335
History 320

Fourth year: 2½ French courses: 43 - 44 or 45 - 48
2 Latin courses: 41 and 42

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4. Joint Honours in French and Philosophy

First year: French 11 or 13 (or its equivalent).
4 other courses including one in Latin

Second year: 2 French courses: 21 or 23, and 22
2 Philosophy courses: 200 and 300
1 course chosen from: Linguistics 21
Fine Arts 201

Third year: 2 French courses: 31 and 44 or 47
2 Philosophy courses: 350 and 360
History 320

Fourth year: 2½ French courses: 43 and 44 or 47 and 48
2 Philosophy courses: 400 and 420, or 410 and 440

5. Joint Honours in French and Spanish

First year: French 11 or 13 (or its equivalent)
Spanish 11 (or its equivalent)
3 other courses, including one in Latin

Second year: 2 French courses: 21 or 23, and 23
2 Spanish courses: 21 and 22
1 course chosen from: Linguistics 21
Philosophy 200
History 100

Third year: 2 French courses: 31 or 32 and 44 or 45 or 47
3 Spanish courses: 31, 32 or 43, 33

Fourth year: 2½ French courses: 41 or 43, 44 or 45 or 47, 48
2 Spanish courses: 41 and 42

The Joint Honours programmes are not absolutely rigid and the Language Departments concerned may require a student either to take one extra course to make up for a linguistic deficiency, or to take a more advanced course than the one scheduled for his year if his fluency in any of the foreign languages concerned is better than average.

M.A. COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

ITALIAN

Students who take Italian in order to fulfil the modern languages requirement for the B.A. degree must take Italian 11 and Italian 21 over two separate years.

Two sets of courses are offered in Italian literature:

(a) *Courses given in Italian* (Courses 31 and 41): Intended for B.A. students taking Italian as a continuation subject. Italian 11 and 21 (or their equivalent) will be prerequisite for these courses.

(b) *Courses given in English* (Courses 25a and 25b): These are open to all students, and do not require a knowledge of the Italian language.

11. FIRST YEAR (Full course). Grammar, reading, oral exercises, and composition.

3 hours. *Professor D'Andrea*

Texts: Roncari & Brighenti, *La Lingua Italiana insegnata agli stranieri* (Mondadori); Bormioli and Pellegrinetti, *Letture Italiane per Stranieri*, vol. I (Mondadori); *Il "Piccolo Orlandi", Dizionario Italiano Inglese e Inglese Italiano* (Signorelli).

21. SECOND YEAR. (Full course.) Translation, free composition, conversation, introduction to Italian literature.

3 hours. *Professor D'Andrea*

Texts: Roncari & Brighenti, *La Lingua Italiana insegnata agli stranieri* (Mondadori); Bormioli and Pellegrinetti, *Letture Italiane per Stranieri*, vol. II (Mondadori); Pirandello, *Sei Personaggi in cerca di Autore* (Mondadori); *Il "Piccolo Orlandi", Dizionario Italiano Inglese e Inglese Italiano* (Signorelli).

31. THIRD YEAR—ITALIAN PROSE FROM THE ORIGINS TO OUR TIMES. (Full course.) Readings from selected Italian authors; Italian conversation, composition and elementary stylistics.

3 hours. *Professor D'Andrea*

Texts: E. Donadoni, *Breve Storia della Letteratura Italiana* (Signorelli); A. Momigliano, *Antologia della Letteratura Italiana* (Principato); G. Morpurgo, *Le più belle Novelle Italiane;* Migliorini & Chiappelli, *Elementi di Stilistica* (Le Monnier).

Readings and selected passages from: Dante, *La Vita Nuova;* Boccaccio, *Il Decameron;* Machiavelli, *Il Principe;* Castiglione, *Il Cortegiano;* Bandello, *Novelle;* Basile, *Il Pentamerone;* Goldoni, *Le Commedie;* Manzoni, *I Promessi Sposi;* D'Azeglio, *I Miei Ricordi;* Pellico, *Le Mie Prigioni;* Nievo, *Confessioni di un Italiano;* Fogazzaro, *Piccolo Mondo Antico;* Verga, *I Malavoglia, Mastro Don Gesualdo;* Pirandello, *Novelle per un Anno, Maschere Nude;* Panzini, *Viaggio di un Povero Letterato;* Palazzeschi, *Stampe dell' Ottocento;* Moravia, *I Racconti;* Levi, *Cristo si è fermato a Eboli.*

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41. FOURTH YEAR—ITALIAN POETRY FROM THE ORIGINS TO OUR TIMES. (Full course.) Readings from selected Italian authors; Italian conversation, composition and stylistics.

3 hours. *Professor D'Andrea*

Texts: E. Donadoni, *Breve Storia della Letteratura Italiana* (Signorelli); A. Momigliano, *Antologia della Letteratura Italiana* (Principato); Migliorini & Chiappelli, *Elementi di Stilistica* (Le Monnier).

Readings and selected passages from: I poeti siciliani, I poeti del "Dolce Stil Nuovo", Dante, Petrarca, Pulci, Poliziano, Lorenzo il Magnifico, Boiardo, Ariosto, Tasso, Parini, Manzoni, Foscolo, Leopardi, Carducci, D'Annunzio, Pascoli, Gozzano, Palazzeschi, Corazzini, Ungaretti, Saba, Montale, Quasimodo.

25a. ITALIAN LITERATURE: DANTE AND THE MIDDLE AGES (Half course).

Lectures will be given in English. Students are not required to take language courses as prerequisites.

First term: 3 hours. *Professor D'Andrea*

Texts: The Portable Dante (The Viking Press); R. A. Hall, *A Short History of Italian Literature* (Linguistica).

Reference: H. O. Taylor, *The Medieval Mind* (Macmillan); C. S. Lewis, *The Allegory of Love* (Oxford); U. Cosmo, *A Handbook to Dante Studies* (Oxford).

25b. ITALIAN LITERATURE: THE RENAISSANCE AND MACHIAVELLI (Half course).

Lectures will be given in English. Students are not required to take language courses as prerequisites.

Second term: 3 hours. *Professor D'Andrea*

Texts: Machiavelli, *The Prince and Other Works*, trans. by Allan H. Gilbert (Farrar, Straus); R. A. Hall, *A Short History of Italian Literature* (Linguistica).

Reference: The Renaissance Philosophy of Man (*Petrarca, Valla, Ficino, Vico, Pomponazzi, Vives*), edited by Cassirer, Kristeller and Randall (Univ. of Chicago Press); W. K. Ferguson, *The Renaissance in Historical Thought* (Houghton Miffin); L. Einstein, *The Italian Renaissance in England* (Columbia University Press); M. Praz, *Machiavelli in England* (Milford).

Italian 25a and *25b* may be taken separately or in combination. If taken in combination, they offer an opportunity to study such major writers as Dante, Petrarca, Boccaccio and Machiavelli. Special emphasis will be placed on the cultural contacts of England and Italy during the Middle Ages and the Renaissance.

SPANISH

Students who take Spanish in order to fulfil the Modern Language requirement for the B.A. degree must take Spanish 11 and Spanish 21 over two separate years. By the Second year, the class is conducted mainly in Spanish. All Third and Fourth year classes are conducted entirely in Spanish. Both oral and written examinations are held on each year's work.

11. FIRST YEAR (Full course). A survey of Spanish grammar. Reading and dictation. Elementary phonetics, Composition. Readings from Spanish and Spanish American authors. Conversation.

3 hours. *Professor Henry and Staff*

Texts: Walsh, *Introductory Spanish* (Norton); Lentz, *A Spanish Vocabulary* (Blackie); Harrop, *Notes on Spanish Pronunciation;* Tirso de Molina, *Los tres maridos burlados* (Oxford); Timms, *Poco a poco* (University of London); Eoff and King, *Spanish American Short Stories* (Macmillan).

21. SECOND YEAR (Full course). Brief introduction to Spanish literature of the Golden Age. Spanish literature 1850-1898. Review of grammar. Free composition. Intermediate phonetics and conversation.

3 hours. *Professor Stegen*

Texts: Tarr and Centeno, *A Graded Spanish Review Grammar and Composition*, Sections I and III (Crofts); Brady and Turk, *Classical Spanish Readings* (Appleton-Century); Harrop, *Notes on Spanish Pronunciation;* Diego Marín, *La vida española* (Appleton-Century-Crofts); Pérez Galdós, *Gloria* (Appleton-Century-Crofts); Palacio Valdés, *La alegría del capitán Ribot* (Heath); Pardo Bazán, *El tesoro de Gastón* (Holt).

31. THIRD YEAR (Full course). Spanish literature 1800-1898. Free and set composition. Translation. Advanced phonetics and conversation.

3 hours. *Dr. Harvey*

Texts: Tarr and Centeno, *A Graded Spanish Review Grammar and Composition*, Section II (Crofts); Levy, *Present-Day Spanish* (Dryden); Harrop, *Spanish Comprehension Pieces*; Foster, *Spanish Composition* (Norton); Watkins, *An Omnibus of Modern Spanish Prose* (Odyssey); Sánchez, *Nineteenth-Century, Spanish Verse*, Sections I, II, and III (Appleton-Century-Crofts); Alarcón, *El sombrero de tres picos* (Ginn); Palacio Valdés, *Marta y María* (Austral); *Escritores costumbristas* (Ebro); Fernán Caballero, *La gravista* (Austral); Zorilla, *Don Juan Tenorio* (Austral); Harrop, *Notes on Spanish Pronunciation;* Harrop, *Spanish Phonetic Reader.*

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32. SPANISH LITERATURE. Third year (Full course). Some representative great works from 1500 to the present day.

3 hours. *Professor Stegen*

Texts: Las mil mejores poesías de la lengua castellana Ed. Bergua, (Biblioteca de Bolsillo); Cervantes, *Don Quijote de la Mancha* (Sopena); Tirso de Molina, *El burlador de Sevilla* (Sopena); Calderón, *El alcade de Zalamea* (Sopena); Pérez Galdós, *Doña Perfecta* (Contemporánea); Valera, *Juanita la larga* (Sopena); García Lorca, *Bodas de sangre; Libro de poemas; La casa de Bernada Alba* (Contemporánea); Romancero (Bib. Lit. del Estudiante); Anónimo, *El Lazarillo de Tormes* (Austral); Pereda, *Sotileza* (Austral); Benavente, *Rosas de otoño* (Austral); Laforet, *Nada* (Áncora).

41. FOURTH YEAR (Full course). The Golden Age of Spanish literature. Twentieth century literature in Spain. Free composition. Practice in phonetic transcription. Conversation.

3 hours. *Professor Harrop*

Texts: Sánchez, *Nineteenth-Century Spanish Verse*, Sections IV and V (Appleton-Century-Crofts); Levy, *Present-Day Spanish* (Dryden); Harrop, *Spanish Graded Comprehension Pieces;* Calderón, *La vida es sueño* (Sopena); Lope de Vega, *Fuenteovejuna* (Sopena); Cervantes, *Don Quijote*, Ed. A. Malo (Ebro); M. de Maeztu, *Antología siglo XX* (Austral); Valle-Inclán, *Sonatas* (Austral); R. Pérez de Ayala, *Tigre Juan* (Austral); *El curandero de su honra* (Austral); R. Menéndez Pidal, *Flor nueva de romances viejos* (Austral); *La novela picaresca* (Bib. Lit. del Estudiante); García Lorca, *Yerma* (Contemporanea); Pío Baroja, *El mayorazgo de Labraz* (Austral); Cela, *La familia de Pascual Duarte* (Áncora); Harrop, *Notes on Spanish Pronunciation;* Harrop, *Spanish Phonetic Reader.*

43. SPANISH-AMERICA LITERATURE. Fourth year (Open also to Third year students of Spanish) (Full course).

3 hours. *Professor Harrop*

Texts: Torres-Ríoseco, Antología de la literatura hispano-americana (Crofts); Güiraldes, *Don Segundo Sombra* (Contemporánea); Ciro Alegría, *El mundo es ancho y ajeno* (Crofts); Gallegos, *Doña Bárbara* (Austral); Ricardo Palma, *Tradiciones peruanas* (Austral); Walsh, *Seis relatos americanos* (Norton); Teresa de la Parra; *Ifigenia* (Ed. "Las Novedades", Caracas); Reyles, *El embrujo de Sevilla* (Austral); Jorge Isaacs, *María* (Sopena); Florencio Sánchez, *Teatro*, Vol. 1 (Sopena); *Novela de la revolución mexicana* (Bibloiteca Enciclopédica Popular); *Poesía latinoamericana contemporánea* (Bib. Enc. Pop.)

(*To be given in 1958-59*)

HONOURS COURSES

With the consent of the Department Honours Courses may be taken by general students.

22. INTRODUCTORY HONOURS COURSE. Second year (Full course).

(a) The Spanish theatre since 1900.

(b) Readings in the contemporary Spanish novel. Modern poetry.

(c) Free composition and set translations on literary subjects.

Professor Harrop

Texts: Benavente, *La Malquerida* and *La noche del sábado* (Austral)—*La comida de la fieras* ard *Al natural* (Austral); Álvarez Quintero, *Malvaloca* and *Dóna Clarines* (Austral); Martínez Sierra, *Canción de cuna* (Holt); García Lorca, *La zapatera prodigiosa* (Contemporánea)—*Mariana Pineda* (Contemporánea); Casona, *Teatro* (Losada); Cano and Saenz, *Easy Spanish Plays* (Heath); Zunzunegui, *Esta oscura desbandada* (Literaria); Galvarriato, *Cinco sombras* (Áncora); Delibes, *La sombra del ciprés es alargada* (Áncora); Arbó, *Sobre las piedras grises* (Áncora); Harrop, *Spanish Graded Comprehension Pieces.*

With the consent of the Department this course may be taken by general students instead of, or in addition to, Spanish 21.

33. SPANISH LITERATURE FROM ITS BEGINNINGS TO THE GOLDEN AGE—HISTORY OF THE SPANISH LANGUAGE. Third year (Full course). *Dr. Harvey*

Texts: López Estrada, *Introducción a la literatura medieval española* (Gredos); Anón., *El poema del Cid* (Ebro); Don Juan Manuel, *El Conde Lucanor* (Ebro); Ed. by González Simón, *Poesía medieval* (B.L. del E.); G. de Berceo, *Milagros de Nuestra Señora* (Ebro); Arcipreste de Hita, *Libro de Buen Amor* (Ebro); Fernando de Rojas, *La Celestina* (Austral); Ed. by Le Strange, *Spanish Ballads* (Cambridge); Ed. by Juliá Martínez, *Piezas teatrales cortas* (B.L. de. E.); Juan de la Encina, *Plácida y Victoriano* (Ebro); Trend, *The Language and History of Spain* (Hutchison); Lapesa, *Historia de la lengua española* (Escelicer).

42. SPANISH DRAMA OF THE 19TH AND 20TH CENTURIES. Fourth year (Open also to Third year students of Spanish) (Full course). 3 hours. *Professor Harrop*

Texts: Jacinto Benavente, *Los intereses creados* and *Señora ama* (Austral) and *La fuerza bruta* and *Lo cursi* (Austral); Álvarez Quintero, *Puebla de la mujeres* and *El genio alegre* (Austral); Brett, *Nineteenth Century Spanish Plays* (Appleton) García Lorca, *Doña Rosita la soltera* and *Bodas de sangre* (Contemporánea); Casona, *Nuestra Natacha* (Appleton-Century); Buero Vallejo, *En la ardiente oscuridad* (Alfil); Unamuno, *El otro* and *El hermano Juan* (Austral); Grau, *El burlador que no se burla* (Contemporánea); Martínez Sierra, *Canción de cuna, etc.* (Crisol); Ed. by Sáinz de Robles, *Teatro español, 1954-1955* (Aguilar).

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32. SPANISH LITERATURE. Third year (Full course). Some representative great works from 1500 to the present day.

3 hours. *Professor Stegen*

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43. SPANISH-AMERICA LITERATURE. Fourth year (Open also to Third year students of Spanish) (Full course).

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Texts: Torres-Ríoseco, Antología de la literatura hispano-americana (Crofts); Güiraldes, *Don Segundo Sombra* (Contemporánea); Ciro Alegría, *El mundo es ancho y ajeno* (Crofts); Gallegos, *Doña Bárbara* (Austral); Ricardo Palma, *Tradiciones peruanas* (Austral); Walsh, *Seis relatos americanos* (Norton); Teresa de la Parra; *Ifigenia* (Ed. "Las Novedades", Caracas); Reyles, *El embrujo de Sevilla* (Austral); Jorge Isaacs, *María* (Sopena); Florencio Sánchez, *Teatro,* Vol. 1 (Sopena); *Novela de la revolución mexicana* (Bibloiteca Enciclopédica Popular); *Poesía latinoamericana contemporánea* (Bib. Enc. Pop.)

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(a) The Spanish theatre since 1900.

(b) Readings in the contemporary Spanish novel. Modern poetry.

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42. SPANISH DRAMA OF THE 19TH AND 20TH CENTURIES. Fourth year (Open also to Third year students of Spanish) (Full course).
3 hours. *Professor Harrop*

Texts: Jacinto Benavente, *Los intereses creados* and *Señora ama* (Austral) and *La fuerza bruta* and *Lo cursi* (Austral); Álvarez Quintero, *Puebla de la mujeres* and *El genio alegre* (Austral); Brett, *Nineteenth Century Spanish Plays* (Appleton); García Lorca, *Doña Rosita la soltera* and *Bodas de sangre* (Contemporánea); Casona, *Nuestra Natacha* (Appleton-Century); Buero Vallejo, *En la ardiente oscuridad* (Alfil); Unamuno, *El otro* and *El hermano Juan* (Austral); Grau, *El burlador que no se burla* (Contemporánea); Martínez Sierra, *Canción de cuna, etc.* (Crisol); Ed. by Sáinz de Robles, *Teatro español, 1954-1955* (Aguilar).

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JOINT HONOURS

French and Spanish: *See under Department of Romance Languages French Section*, p. 1144.

Latin and Spanish: *See under Department of Classics Latin Section*, p. 1051.

SPANISH COURSES, GENERAL

Recommended Reference Books: Cuyás and Llano, *New Spanish Dictionary* (Appleton); *Pequeño Larousse Illustrado* (Larousse); Malaret, *Diccionario de americanismos* (Emecé); Díez Mateo, *Diccionario espanol etimológico del siglo XX* (Academo); Navarro Tomás, *Manual de pronunciación española* (Rev. de Filología Esp.); Menéndez Pidal, *Manual de gramática histórica española* (Suárez); Ángel del Río, *Historia de la literatura española* (Dryden); Torres Ríoseco, *La Literatura iberoamericana* (Ed. Emecé, B.A.); Romera-Navarro, *Historia de la literatura española* (Health); Academia Española, *Gramática de la lengua española* (Espasa-Calpe); Allison Peers, *Spain: A Companion to Spanish Studies* (Methuen); J. B. Trend, *The Civilization of Spain* (Home University); Ramsay, *A Textbook of Modern Spanish* (Holt).

SOCIOLOGY AND ANTHROPOLOGY

Associate Professor WILLIAM A. WESTLEY, *Chairman*

Assistant Professors FREDERICK ELKIN, JACOB FRIED, PHILIP GARIGUE, AILEEN D. ROSS, DAVID N. SOLOMON

Research Assistants ROSALYND BAYLIN, COLETTE CARISSE

SOCIOLOGY

210. INTRODUCTION TO SOCIOLOGY. Second year. (Full course.) A general introduction to sociological theory and the analysis of groups in modern society. The course covers comparative cultures, the social development of the individual, ethnic and class groupings, characteristics of urban life, social change, and institutional structures.

3 hours.

The Introductory Course is divided into lecture sections which are essentially the same. Students will indicate on their registration forms whether they are registering for 210X, or 210Y.

Either Sociology 210 or Anthropology 220 is prerequisite to all other courses in Sociology or Anthropology.

210X. INTRODUCTION TO SOCIOLOGY. *Professor Ross*

210Y. INTRODUCTION TO SOCIOLOGY. *Professor Westley*

300a. THE COMMUNITY. Third or Fourth year. (Half course.) Rise of modern urbanism; human ecology and theories of urban growth; community studies on the North American continent.

3 hours. *Professor Ross*

310a. PRE-INDUSTRIAL SOCIETIES. Third year. (Half course.) Identical with, and described under, Anthropology 310a.

3 hours. *Professor Garigue*

311b. COMPLEX SOCIETIES. Third year. (Half course.) Social systems of modern, complex, industrial societies; scientific, economic, political, religious, health, and other institutional structures; voluntary associations; the role of small groups in institutions; bureaucratization of institutions.

3 hours. *Professor Solomon*

330a. COLLECTIVE BEHAVIOR. Third or Fourth year. (Half course.) Description and analysis of elementary forms of collective behavior such as crowds, mobs, and religious meetings; their origins in social unrest; social movements and revolutions; the nature of mass society, and the ways in which political and social processes are related to changes in the social order; the bases for the formation of a new social order.

3 hours. *Professor Westley*

(*Not given in 1957-58*)

331b. COMMUNICATIONS AND PUBLIC OPINION. Third or Fourth year. (Half course.) The nature of public opinion and mass communications; the social control, content, and influence of the press, radio, motion pictures, and television; the nature of propaganda; pressure groups.

3 hours. *Professor Elkin*

340a. THE FAMILY. Third year. (Half course.) The structure and functions of the family and its relation to other community institutions; interpersonal relationships within the family; the family and social change; family disorganization and reorganization.

3 hours. *Professor Ross*

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350b. MINORITY GROUPS. Third year. (Half course.) The nature of minority group relationships with special reference to Canada, the United States, South Africa, and the West Indies; the ecology and economic position of minority groups; their participation in educational, political and religious institutions; their relationship to the class structure; dominant group attitudes and ideologies concerning minority groups; the effect of minority group membership on the individual; conflict and social movements.

3 hours. *Professor Ross*

360a. CRIMINOLOGY. Third or Fourth year. (Half course.) Theories of crime; social systems and their punitive practices; types of crime in modern society; the relationships between social power, the law, and crime; the slum community; the police; political crimes.

3 hours. *Professor Westley*

380a. SOCIOLOGY OF THE CHILD. Third year. (Half course.) The social development of the individual from infancy to adulthood, emphasizing theories of human nature and socialization; childhood and adolescent roles; the influence of culture, the family, and peer groups.

3 hours. *Professor Elkin*

411b. SOCIAL STRATIFICATION. Fourth year. (Half course.) The theory of caste and class divisions in modern society; the structure of class groups in the United States and Canada; the criteria of rank and the symbols associated with rank; the relationship between occupation, education, and class position; problems of upward and downward mobility.

3 hours. *Professor Ross*

421b. SOCIAL PSYCHOLOGY. Fourth year. (Half course.) Personality development; the origin of the self; the relationship between language and behavior; the emergence of social behavior; and the analysis of social action.

Open to Fourth year Honours students or by permission of instructor.

3 hours. *Professor Westley*

Prerequisite: Sociology 380a.

430a. HISTORY OF SOCIOLOGY. Fourth year. (Half course.) Social thought and historical developments which led to the development of sociology as a separate discipline; early sociologists in Europe and America; recent trends in areas of interest and research methodology.

Open to Fourth year Honours students or by permission of the instructor.

3 hours. *Professor Elkin*

432a. TECHNIQUES OF SOCIOLOGICAL RESEARCH I. Fourth year. (Half course.) The formulation of research projects; use of documents, census and other available data; collection of data through observation and interviewing; analysis of non-quantitative material.

3 hours. *Professor Solomon*

Open to Fourth year Honours students or by permission of the instructor.

433b TECHNIQUES OF SOCIOLOGICAL RESEARCH II. Fourth year. (Half course.) Introduction to survey research: the selection of samples, construction of questionnaires and scales, analysis and interpretation of data.

3 hours. *Professor Elkin*

Open to Fourth year Honours students or by permission of the instructor.

440b. POPULATION AND MIGRATION. Fourth year (Half course). Populations and their composition; age, sex, and language groupings; birth rates, death rates, and population growth; the structure of the labour force, and changes therein; international migration, domestic migration, and the forceful transfer of populations; immigration policies. Major emphasis on the Canadian scene.

3 hours.

(*Not given in 1957-58*)

450a. OCCUPATIONS AND PROFESSIONS. Fourth year. (Half course.) Historical development of specialized occupations and professions; occupational mobility; occupational choice; stages of careers; social control of relations with clients, customers, fellow workers, and other interested parties; professional and trade associations; work and the self.

3 hours. *Professor Solomon*

460b. SOCIOLOGY OF INDUSTRIAL INSTITUTIONS. Fourth year. (Half course.) Industrial and other work institutions; the concept of bureaucracy; operation of bureaucracies; formal and informal organization of the work world; roles of managers, executives, foremen, and workers; the plant and the community; industry and society.

3 hours. *Professor Solomon*

Note: Sociology 450a and Sociology 460b may be regarded as a sequence in the Sociology of work.

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ANTHROPOLOGY

220. INTRODUCTION TO ANTHROPOLOGY. Second year. (Full course.) Historical relationship of race, language, and culture; culture history, analysis of cultural systems; culture and personality.

3 hours. *Professor Fried*

Anthropology 220 or Sociology 210 is prerequisite to all other courses in either Anthropology or Sociology.

310a. PRE-INDUSTRIAL SOCIETIES. Third year. (Half course.) The comparative study of social organization among pre-industrial groups. The course will deal principally with the analysis of social systems as these appear in cultures at various levels of complexity.

3 hours. *Professor Garigue*

321a. ETHNOLOGY OF OCEANIA. (Half course.) The native cultures of Melanesia, Micronesia, and Polynesia; racial and cultural origins; ethnographic accounts of representative societies.

3 hours. *Professor Fried*

(*Not given in 1957-58*)

322b. AFRICAN ETHNOLOGY. (Half course.) Description of the peoples and cultures of Africa, south of the Sahara.

3 hours. *Professor Garigue*

(*Not given in 1957-58*)

323. NORTH AMERICAN INDIANS. Third or Fourth Year. (Full course.) A study of the past and present Indian and Eskimo cultures of Canada and the United States.

3 hours. *Professor Fried*

324. DEVELOPMENT OF CULTURE. Third year. (Full course.) The study of the development of culture from prehistoric to modern times based upon descriptions from paleontological, archaeological and ethnological research. The course is designed to provide students with historical and comparative illustrations of cultural changes from fossil to contemporary man.

3 hours. *Professor Garigue*

325b. THE CULTURE AND SOCIAL ORGANIZATION OF FRENCH CANADA. Third or Fourth year. (Half Course.) The description and analysis of the culture and social organization of French Canadians in the Province of Quebec and of French-speaking groups in North America.

3 hours. *Professor Garigue*

420a. CULTURE AND PERSONALITY. Fourth year. (Half course.) The study of culture and personality with emphasis upon the cultural background; the process of socialization as it is revealed in a comparative study of primitive societies.

3 hours. *Professor Fried*

470. SOCIAL ANTHROPOLOGY. Fourth year. (Full course.) A comparative study of social institutions and groupings. The course will discuss kinship; the legitimation of authority and power; the functions of religion, magic and witchcraft; and the formation of groups through the division of labour, property and economic reciprocity.

3 hours. *Professor Garigue*

471b. THEORIES AND METHODS OF ANTHROPOLOGY. Third or Fourth year. (Half course.) The course will deal with the recent theoretical developments in Anthropology. Topics discussed will include the relationship between specific types of theoretical analysis and methods of field research, the problems arising from the use of the genealogical method, differences in languages and the use of informants, the collection of data from observation, and the presentation of data in a monographic form. The role of hypotheses and theoretical models will also receive attention.

3 hours. *Professor Garigue*

(*Not given in 1957-58*)

490b. CULTURAL THEORY. Fourth year. (Half course.) An examination of the logical and functional integration of culture; determination of the primary institutionalized pattern and the basic values of the culture; structuring of patterns of socialization and social control, kinship extension and reciprocity, social and political dominance, and religion.

3 hours. *Professor Fried*

Prerequisite: Anthropology 220.

HONOURS SEQUENCES IN SOCIOLOGY AND ANTHROPOLOGY

Admission to Honours will normally take place at the beginning of the Third year and will be determined by the student's standing in Sociology or Anthropology and related subjects. A minimum of a good second class standing in Sociology 210 or Anthropology 220 and approval of the Department is required for acceptance into Honours.

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SOCIOLOGY

Five and a half courses in Sociology constitute the Honours requirements. The required sequences of courses appear below.

Third year:

Sociology 310a PRE-INDUSTRIAL SOCIETIES
Sociology 311b COMPLEX SOCIETIES
Sociology 340a THE FAMILY
Sociology 380a SOCIOLOGY OF THE CHILD
and
Psychology 22a or 22b (Statistics)

Fourth year:

Sociology 421b SOCIAL PSYCHOLOGY
Sociology 430a HISTORY OF SOCIOLOGY
Sociology 432a TECHNIQUES OF SOCIOLOGICAL RESEARCH I
Sociology 433b TECHNIQUES OF SOCIOLOGICAL RESEARCH II
and any two of the following:
Sociology 300a THE COMMUNITY
Sociology 411b SOCIAL STRATIFICATION
Sociology 440b POPULATION AND MIGRATION
Sociology 450a OCCUPATIONS AND PROFESSIONS
Sociology 460b SOCIOLOGY OF INDUSTRIAL INSTITUTIONS

Modifications of this program may be made by the use of courses in Anthropology, Economics and Political Science, Geography, History, Philosophy, and Psychology.

ANTHROPOLOGY

Five and a half courses in Anthropology constitute the Honours requirements. The required sequences of courses appear below.

Third year:

Anthropology 323 NORTH AMERICAN INDIANS
Anthropology 324 DEVELOPMENT OF CULTURE
and any one of the following:
Anthropology 321a ETHNOLOGY OF OCEANIA
Anthropology 322b AFRICAN ETHNOLOGY
Anthropology 325b THE CULTURE AND SOCIAL ORGANIZATION OF FRENCH CANADA

Fourth year:

Anthropology 420a CULTURE AND PERSONALITY
Anthropology 470 SOCIAL ANTHROPOLOGY
Anthropology 490b CULTURAL THEORY
Sociology 432a TECHNIQUES OF SOCIOLOGICAL RESEARCH I
Sociology 433b TECHNIQUES OF SOCIOLOGICAL RESEARCH II

Modifications of this program may be made by the use of courses in Sociology, Economics and Political Science, Geography, History, Philosophy, and Psychology.

Students taking Honours in Sociology or Anthropology and one other subject are required to select four courses, in consultation with the Chairman of the Department, during the Third and Fourth years.

CONTINUATION SEQUENCES IN SOCIOLOGY AND ANTHROPOLOGY

Sociology and Anthropology are regarded as separate disciplines for continuation purposes.

SOCIOLOGY

The following sequences are suggested for General Arts students who have chosen Sociology for continuation:

Community Organization: 210, 300a or 311b, 411b.
Industrial Relations: 210, 311b, 450a, 460b.
Pre-professional: 210, 311b, 411b, 450a.
Social Psychology: 210, 330a or 331b, 380a, 421b.

ANTHROPOLOGY

The following sequences are suggested for General Arts students who have chosen Anthropology for continuation:

Culture: 220, 324, 420a.
Social Institutions: 220, 310a, 470.
Ethnography: 220, 321a or 322b, or 325b, 323.

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ZOOLOGY

Professors	JOHN STANLEY, *Chairman* N. J. BERRILL
Professor of Parasitology	T. W. M. CAMERON
Associate Professors	M. J. DUNBAR H. R. SCOTT
Lecturer	JOAN MARSDEN
Carpenter Teaching Fellow	D. STEELE

100. THE HIGHER PLANTS AND ANIMALS (BIOLOGY 100). (Full course.) An introductory course in Biology, covering the higher plants and animals. The course is given in two Sections. Section X considers the plants in the first term and the animals in the second term. Section Y considers the animals in the first term and the plants in the second term.

2 hours lectures and 3 hours laboratory.

Botany: *Professors Roscoe, Wilson and Boll*

Zoology: *Professors Berrill* and *Stanley*

NOTE: For the session 1957-58 *only* past failures in Botany 11a or Zoology 11b may register for the appropriate half of Biology 100 and if then successful, obtain credit for the original half-course.

211. THE INVERTEBRATE ANIMAL KINGDOM. (Full course.) A general introduction to the invertebrates, covering the structure, function, environmental relationships, economic importance and evolutionary significance of the main groups. This course is reprequisite to Zoology 324, 325 and 325L.

2 hours lecture and 3 hours laboratory. *Professor Berrill*

Prerequisite: Biology 100 (For the session 1957-58, Zoology 11b).

221. VERTEBRATE ZOOLOGY. (Full course.) The evolutionary history of vertebrate animals, including the origin, classification, and special features of the classes of vertebrates and the comparative anatomy of the functional systems of the body. Dissection of a series of representative vertebrates with special emphasis on mammalian anatomy.

2 hours lectures and 3 hours laboratory. *Dr. Marsden*

Prerequisite: For the session 1957-58 *only*, Zoology 11b. (With permission, *Honours* students may substitute Zoology 11a.) After 1957-58, Biology 100.

322a. VERTEBRATE HISTOLOGY. (Half course.) A comparative study of the microscopic structure of animal tissues and organs; an interpretation of

this structure in terms of function and embryonic origin; an introduction to human histology.

First term: 2 hours lectures and 3 hours laboratory. *Professor Scott*

Prerequisite: Zoology 221. (With permission, may be taken concurrently.)

Text: Maximow and Bloom, *Textbook of Histology* (Saunders).

322b. VERTEBRATE EMBRYOLOGY. (Half course.) A comparative study of embryonic development in the various classes of vertebrates, leading to an interpretation of human development.

Second term: 2 hours lectures and 3 hours laboratory. *Professor Berrill*

Prerequisite: Zoology 322a.

324. ADVANCED INVERTEBRATE ZOOLOGY (EXCEPT ARTHROPODA). (Full course.) A study of the comparative anatomy, taxonomy, development, evolution, and economic importance of invertebrate animals other than the Phylum *Arthropoda.*

2 hours lectures and 3 hours laboratory. *Professor Stanley*

Prerequisites: For 1957-58 *only*, Zoology 11a (second class standing), and for *non-Honours* students, Zoology 221 or 322 (21 or 22). (With permission, *Honours* students may substitute Zoology 11b for Zoology 11a.) After 1957-58, prerequisite will be Biology 100 and Zoology 211.

Texts: Borradaille, Eastham, Potts and Saunders, *The Invertebrata*, (Cambridge); Pratt, *Manual of the Common Invertebrates* (MacMillan). A laboratory manual is issued by the Department.

(*Offered in alternate years. Offered in 1957-58*)

325. THE ARTHROPODA. (Full course.) A study of the comparative anatomy, taxonomy, development, evolution, and economic importance of animals of the Phylum *Arthropoda.*

3 hours lecture. *Professor Stanley*

Prerequisites: Biology 100 and Zoology 211.

Texts: Borradaille, Eastham, Potts and Saunders, *The Invertebrata* (Cambridge); Pratt, *Manual of the Common Invertebrates* (MacMillan).

(*Offered in alternate years. Not offered in 1957-58*)

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325L. ARTHROPODA LABORATORY. (Half course.) The laboratory work of Zoology 325. Zoology 325 and 325L *must* be taken together in the same year.

2 laboratory periods of 2 hours each per week. A laboratory manual is issued by the Department. *Professor Stanley*

Prerequisites: As for Zoology 25.

(*Offered in alternate years. Not offered in 1957-58*)

332. ANIMAL ECOLOGY. (Full course.) A study of the inter-relations between animals, groups of animals, and their environments. The zoogeography of terrestrial, marine, and fresh-water populations; the analysis of the physical environment in all three divisions of the biosphere; migrations, emigrations, and other movements of animals, and the numerical behaviour of populations. Ecology and evolution.

3 hours. *Professor Dunbar*

Prerequisites: For 1957-58 *only*, Zoology 11a, 11b, and any one of Zoology 221, 324, 325 plus 325L. (With permission, *Honours* students may enter with 11a *or* 11b, in place of 11a *and* 11b.) After 1957-58, Zoology 211 or 221.

Text: Hesse, Allee and Schmidt, *Ecological Animal Geography* (Wiley).

337a. HISTORY OF BIOLOGY. (Half course.) The history of biology from Thales to the present day; including the development of scientific observation in anatomy, comparative morphology, ecology, embryology, and palaeontology. Theories of the relationships of animals, parts of animals, and of their evolution. Philosophical history of biology. Biological expeditions.

3 lectures per week, first term. *Professor Dunbar*

(*Offered in alternate years. Not offered in 1957-58*)

Prerequisite: Biology 100.

343b. LIMNOLOGY. (Half course.) A study of the fresh water environment and its organisms. The classification of inland waters, physical and chemical characteristics of lakes, the plankton and nekton, cyclomorphosis, the benthos, productivity and developmental sequence in lakes, running water systems, special environments.

Second term: 3 hours lectures. Field trips if possible. *Dr. Marsden*

Prerequisite: For 1957-58 *only* Zoology 11a, 11b and any one of Zoology 221, 324, 325 plus 325L. After 1957-58, either 211 or 221.

Text: Welch, *Limnology* (McGraw-Hill).

345. PHYSIOLOGICAL ZOOLOGY. (Full course.) A functional study of diverse mechanisms which have been evolved in different types of animals to carry on such basic activities of life as nutrition, water balance, nitrogen excretion, respiration, locomotion, stimulus reception, nervous and endocrine co-ordination.

2 hours lectures and 3 hours laboratory per week throughout the session.

Dr. Marsden and Professor Scott

Prerequisites: For 1957-58 *only*, Zoology 11a, 11b, Physiology 22, and any one of Zoology 221, 324, 325 and 325L. (With permission, Physiology 22 may be taken concurrently.) After 1957-58, Zoology 211 or 221 and Physiology 22.

431. HISTOLOGICAL TECHNIQUE (PRACTICE AND THEORY). (Full course.) Training in the making of various types of histological preparations; discussion of the theories involved and interpretation of the results obtained.

1 hour lecture and 6 hours laboratory. *Professor Scott*

Prerequisite: Zoology 322a (Second class standing).

Text: Lillie, *Histopathologic Technic and Practical Histochemistry* (Blakiston).

433. DEVELOPMENT AND EXPERIMENTAL MORPHOLOGY. (Full course.) The study of form and pattern and the problems of organization in both invertebrates and vertebrates.

2 hours lectures and 3 hours laboratory per week throughout the session.

Professor Berrill

Prerequisite: Zoology 221 or 322.

435. APPLIED BIOMATHEMATICS. (Half course.) An elementary study of mathematical theories of growth and form, mathematics as applied to growth of populations, host-parasite relations, radio-active tracers, the steady state, contagious distributions, the theory of search.

2 lectures per week in the first term; one per week second term.

Professor Stanley

Prerequisite: Mathematics 224 (or a working knowledge of the calculus) and any biology course.

441. ZOOLOGICAL RESEARCH. (*Honours* Zoology only, Fourth year.) Individual training in zoological research methods, fields of research, and introduction to field and laboratory projects. Thesis and seminar presentations.

The Staff

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446a. ADVANCED VERTEBRATE ZOOLOGY. (Half course.) A study of the present systematics of the vertebrate classes presented as a function of their past histories since the periods of their first apperance. The course is intended to follow upon Zoology 221.

(Offered in alternate years with Zoology 337a. Offered in 1957-58)

Three hours lecture per week, first term. *Professor Dunbar*

Prerequisite: Zoology 221.

Text: No set text.

HONOURS COURSE IN ZOOLOGY

The succession of courses taken in Honours Zoology will normally be as follows, but this procedure may be varied in special cases by permission of the Department.

First year: The general B.Sc. curriculum, with Biology 100.

Second year: Zoology 211, 221, Physiology 22, plus a half course in Botany if not already taken, plus sufficient whole and half courses to make up a total of five full courses. The additional courses as above are to be selected with the advice of the Department from cognate fields or from courses in Zoology.

Third year: Zoology 332a, 322b, 324 (if given in that year), 332, 337a (if given in that year), 345, plus sufficient whole and half courses to make up a total of five full courses.

Fourth year: Zoology 324 (if given in that year), 337a (if given in that year), 441 and Genetics 44, plus sufficient whole and half courses to make up a total of five full courses, selected as in the case of the Second year.

With respect to the additional selected courses, such courses as Organic Chemistry, Physical Chemistry, Botany, Genetics, Physiology, and the like are emphasized.

CONTINUATION COURSES

Second year: Zoology 211, 221.

Third year: Zoology 221, 322, 324 (325+325L), 332, 337a, 343b, 345, 446a.

Fourth year: Zoology 324, (325+325L), 337a, 431, 433, 435, 446a.

Attention is called to the General Honours in Biological Sciences", page 1026.

A student who has not completed Biology 100 *must* obtain permission of the Department of Zoology before proceeding to more advanced courses in Zoology.

GRADUATE COURSES

See the Announcement of the Faculty of Graduate Studies and Research.

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McGill University

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School of Commerce

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and School of Household Science.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

School of Commerce

The School of Commerce is under the administrative jurisdiction of the Faculty of Arts and Science (McGill College).

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C.	*Principal*
D. L. Thomson, M.A., Ph.D., LL.D., F.R.S.C.	*Vice Principal*
H. N. Fieldhouse, M.A., F.R.S.C.	*Dean of McGill College*
C. D. Solin, Ph.D.(Tor.), M.A.	*Assistant Dean of McGill College*
E. W. Kierans, B.A.	*Director of the School of Commerce*
William Bentley, C.G.A., F.C.I.S.	*Bursar*
G. A. Grimson, B.Com.	*Comptroller*
Colin M. McDougall, D.S.O., B.A.	*Registrar*

B. COM. ADVISORY COMMITTEE

Professor E. W. Kierans, *Chairman*

The Dean	Professor W. S. Reid
Professor K. F. Byrd	Professor Herbert Tate
Professor W. Westley	Professor E. C. Webster
Professor F. K. Hare	The Assistant Dean
Professor Donald Marsh	

A complete list of the teaching staff of the University, including the School of Commerce, is printed as a separate announcement, which may be obtained from the Registrar's Office.

SCHOOL OF COMMERCE OFFICE

ARTHUR PURVIS MEMORIAL HALL
1020 Pine Avenue West
Montreal 2

Telephones — MA 9181

Office	— Local 450
Staff	— " 458
Accountancy	— " 445
Commerce Library	— " 452
Industrial Relations Centre	— " 294
Research	— " 258

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ADVISORY COUNCIL

FOR THE

SCHOOL OF COMMERCE

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RUSSELL BELL, *President, Greenshields & Co., Inc.*
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J. B. WHITE, *Vice-President, Aluminum Co. of Canada, Ltd.*
E. C. WOOD, *President, Imperial Tobacco Co. of Canada*
PROF. E. W. KIERANS, *Director of the School of Commerce*
DR. W. H. PUGSLEY, *Secretary*

School of Commerce

PRELIMINARY STATEMENT

The programme of the School of Commerce is designed to provide training for business and administrative careers in industry and the public service, and includes undergraduate training, graduate training, and extension activities for graduates and non-graduates. The programme is organized in several divisions, as follows:—

Bachelor of Commerce Degree—A four-year course of study designed to prepare the student for the B.Com. degree.

Master of Commerce Degree—Advanced training and research designed to prepare the student for the M.Com. degree.

Evening Certificate and Diploma Courses—Training courses in Accounting, Mathematics, Commercial Law, and allied subjects to assist evening students to prepare for certificate and diploma examinations conducted by the School, and to meet the requirements of certain professional societies.

Industrial Relations Centre—A centre established for the purpose of bringing members of the University staff and of the industrial community together with a view to promoting study and research in fields associated with industrial relations.

COMMERCE LIBRARY

The Commerce Library is located in Purvis Hall and consists of over 17,000 books and periodicals and 9,000 pamphlets in the field of economics, business, industrial relations, and management. These materials are readily available on the shelves and in files in the library reading room. The facilities of the Redpath Library are also available to students.

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UNDERGRADUATE PROGRAMME

The Bachelor of Commerce Degree

AIMS OF THE SCHOOL

The undergraduate curriculum in the School of Commerce must necessarily be directed towards the attainment of two major objectives: the education of the student to take his place in society as a responsible citizen equipped to provide the leadership expected of him by his fellow men, and his preparation for a career in business. There is general agreement among educators and businessmen that these twin objectives can be most satisfactorily accomplished by a programme of study which carefully integrates a liberal education with an education in business fundamentals.

Education for business rests on the same principles which underlie all technical and professional education. Either the student may learn through his own experience, which is slow, inefficient, and expensive both to society and to himself; or he may learn through a study of the experience of others. A School of Commerce can familiarize the students with the underlying and basic economic laws, principles, and forces which work in and through our business system; a School of Commerce can teach a student to think clearly, particularly regarding economic and business problems; a School of Commerce can bring to a student those methods of management and executive principles tested by experience; a School of Commerce can stress the constant pressure in business for improved methods and procedures; a School of Commerce can emphasize the social obligations and public responsibilities of business.

Courses in economics should be the foundation of every curriculum in a collegiate school of business. Based upon a foundation in economic principles, the commerce curriculum contains a solid core of Arts and Science courses which can be considered as essential elements in the background of one who is being prepared for positions in business which will call for the application of imagination, resourcefulness, and creativeness.

These courses in the liberal arts and sciences are studied simultaneously with commerce subjects throughout the four years of the undergraduate programme so that the student never loses sight of the fact that business and the arts are complementary disciplines.

ADMISSION TO THE SCHOOL OF COMMERCE

All applications to enter the School of Commerce must be made on forms which may be obtained from the Registrar's Office. Each applicant from a High School should see that a confidential report is sent from his

school Principal to the Registrar, as such a report is necessary for the consideration of the application. Completed applications should reach the Registrar not later than August 31st, and if possible much earlier.

Each accepted candidate will receive a formal acceptance to a definite course and year and this must be kept for presentation at registration.

The number of admissions is limited and the School is not bound to accept all applicants who have passed the required examinations.

ADMISSION TO THE FIRST YEAR

A student may apply for admission to the First year of the B.Com. course after passing in specified subjects of the McGill School Certificate Examination or one of the examinations recognized by the University. For details, see the School Certificate Examinations Announcement.

ADMISSION TO THE SECOND YEAR WITH SENIOR MATRICULATION

A student may apply for admission to the Second year if he has passed in specified subjects of the Senior School Certificate Examinations, or recognized equivalent, and if he has achieved an average of at least 70% on the examination as a whole. Special consideration may, however, be given to candidates who have received an average of 65% to 70% if they have obtained high standing in each of the English, History, and Mathematics examinations. For further particulars, see the School Certificate Examinations Announcement.

ADMISSION BY TRANSFER

Application for transfer into an upper year of the School should be made to the Registrar's Office. It must be made on the regular form and be supported by certified copies of the applicant's previous academic record including the matriculation record. Such an application will be considered only if the student is in good standing and has a record which justifies the transfer.

Students admitted into the Second or the Third year will be required to take certain courses compulsory in a lower year, unless exempted.

Two years of residence are required as minimum for the degree, hence students cannot be allowed to transfer into the Fourth year.

REGISTRATION

All First year students in the School of Commerce will register on Tuesday, September 17th, between 9 a.m. and 12.00 noon, in the Sir

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Arthur Currie Memorial Gymnasium. Students in the Second, Third, and Fourth years whose names begin with the letters A to L will register in the Gymnasium on Tuesday, September 24th and those whose names begin with the letters M to Z will register on Wednesday, September 25th between 9 a.m. and 4 p.m.

The Freshman Welcome meeting will take place on Wednesday, September 18th in the Gymnasium at 9 a.m.

After September 25th a special late registration fee must be paid (see the General Information Pamphlet included in this Announcement).

No student will be admitted after October 15th except by special permission of the Dean.

All women undergraduates registered at McGill University are automatically members of the Royal Victoria College, whether in residence or not, and at the time of registration will be required to fill out special forms for the Royal Victoria College. Women undergraduates not residing with their parents or guardians in Montreal must apply for residence in the College, attaching, if desired, a note describing in full their plans for residence elsewhere, and obtain the Warden's written approval (*See the General Information pamphlet.*).

REGISTRATION PROCEDURE

Each regular undergraduate must be registered for the courses and year to which he has been accepted. Limited undergraduates and Partials must obtain approval of their courses from the Director of the School and the Dean's office before proceeding to register.

All students intending to take an Honours Course (Economics or Political Science) must obtain the approval of the Chairman of the appropriate department and of the Director of the School before registration.

Courses of study for the B.Com. degree are laid down on pages 1211-1213 and details of these courses are found in pages 1214 to 1244. Information regarding registration for Honours, or Distinction and Great Distinction is found on pages 1209-1210.

ATTENDANCE, EXAMINATIONS, AND ADVANCEMENT

The attention of students in Commerce is called to a separate pamphlet entitled *Regulations Governing Attendance, Examinations, and Advancement*, issued by the Faculty of Arts and Science. This booklet is distributed at the time of registration. Extra copies may be obtained through the Dean's Office.

FEES

Regular University fees and special fees are explained in the General Information Pamphlet enclosed with this Announcement.

The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions as described in the regulations concerning remission of fees in the General Information Pamphlet.

DATES OF PAYMENT

Fees are due and payable at the Accounting Office between the hours of 9 a.m. and 4 p.m. (Saturday 9-12), on the following dates:—

Tuesday, September 17th

to

Tuesday, October 1st

If desired, fees may be remitted by mail before the above dates.

The second instalment of tuition fees is due and payable on January 15th. An additional $2.00 is charged for payment after the specified dates.

Students registering late pay their fees at the time of registration, failing which they become subject to the provisions of the above paragraph.

Failure to pay fees by the prescribed dates will result in suspension from attendance at classes by the Dean of the Faculty until fees are paid, or a satisfactory arrangement is made with the Chief Accountant.

EXPENSES

An estimate of expenses will be found in the General Information Pamphlet included in this Announcement.

PASS MARK AND CLASSES

The pass mark in all examinations is 50 per cent, and the minimum marks for first and second class standing are 80 per cent and 65 per cent respectively.

DISTINCTION AND HONOURS

Distinction in the General Course will be awarded to students, other than those registered in the Honours course in Economics, who achieve a 75 per cent average in the Second, Third, and Fourth years.

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Great Distinction will be awarded to students who achieve an 80 per cent average in the Second, Third, and Fourth years.

Honours in Economics and in Political Science

At the beginning of his second year a student whose average mark in his first year is 65% or more may elect Honours in Economics (or Honours in Political Science with specialization in Public Administration), provided that he obtains the permission of the Chairman of the Department of Economics and Political Science. To remain in Honours he must attain a yearly average of at least 65% in those courses he takes within the Department. Individual tutorial guidance is provided for the student in Honours during his third and fourth years.

The requirements of Honours Economics, in conjunction with the ordinary requirements of the School of Commerce, determine the following programme of studies. During the four years of his studies the student must take at least seven courses in Economics. In the first year he takes the ordinary programme of the School of Commerce, including Economics 100 (Economic History). In his second year he takes the regular courses in the School of Commerce except that he substitutes Economics 211H (Introduction to Economic Theory) for Economics 211C (Principles of Economics). In his third year he takes Economics 311 (History of Economic Thought), Economics 321 (Money and Banking), Economics 361 (Economic Statistics), a course in the Arts continuation begun in second year, and a fifth course as the School of Commerce allows. In his final year he takes Economics 411 (Advanced Economic Theory) instead of Economics 412 (Economic Analysis), any further courses in Economics to meet the overall minimum of seven, a further course in his continuation subject, a course in Commercial Law, and the balance of his programme as the School and Department allow. His choice of courses in Economics must prepare the student for the "Special Paper" described in the section on examinations that follows.

Students who wish to take Honours Political Science (with specialization in Public Administration) should consult the Department for details of course and examination requirements.

For a complete description of courses offered by the Department of Economics and Political Science, students should refer to the Arts and Science Calendar.

Final Examinations for Honours in Economics

At the end of his fourth year, the student who has elected Honours Economics writes the following examinations:

(a) the course examination in Economics 411 supplemented by questions based on his earlier work in Economics 211H and 311;

(b) a paper in a field of specialization, e.g., Economic Theory, Labour Economics, International Trade. Courses elected in the third and fourth year will not be approved unless their sequence prepares the student for this requirement. The "special paper" replaces the ordinary examination in the corresponding course in economics.

(c) ordinary examinations in all other courses.

The effect of this programme is that the Honours student writes the same number of papers as the general student, but that one of the papers he writes has supplementary questions, and that another replaces an ordinary course examination.

STUDENTS WORKING TOWARDS A PROFESSION

Students who intend after graduation to enter a profession should acquaint themselves with the requirements for admission to that profession, and should take these requirements into consideration when choosing their optional courses.

Candidates for the Licentiate in Accountancy of McGill University, conferring on its holders the right to become members of the Institute of Chartered Accountants of Quebec, should have their programmes approved by the Professor of Accounting or the Director of the School of Commerce.

Students who wish to enter the actuarial profession should take Mathematics 216 in their First year. The courses in Actuarial Mathematics on pages 1234-1235 offer a sound basis for professional work in this field.

THE MASTER OF COMMERCE DEGREE

Bachelors of Commerce who have obtained at least second class standing and who have the permission of the Director of the School of Commerce and of the Department of Economics and Political Science may apply to proceed to the Master of Commerce degree. For particulars see the Announcement of the Faculty of Graduate Studies and Research.

CURRICULUM

The curriculum leading to a B.Com. degree consists in part of compulsory courses and in part of optional courses chosen in accordance with the student's individual interests. As optional courses a student may take

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any courses offered in the Faculty of Arts and Science which are approved by the Director. A student in any year is expected to satisfy himself, before he selects any optional course:

(1) That he has completed any pre-requisite work for the course,

(2) That there is no conflict in his time-table,

(3) That his selection is approved by the Director.

The choice of optional courses is very important. Only one limited option is permitted in the First year. During that year the student should seek guidance from faculty members to assist him in working out for later years an integrated group of courses most suited to his interests and needs. For example, the student planning to become a Chartered Accountant should be sure that he elects the appropriate options required for this professional training. Similarly, a student interested in specialization in Industrial Relations should obtain advice on the most appropriate grouping of optional courses in Economics, Psychology, and Sociology. The high degree of flexibility provided by the optional system makes careful selection imperative.

English Composition Requirement. Every candidate for a degree in the Faculty of Arts and Science must satisfy the Department of English (which, in this matter, acts as the agent of Faculty) that he is competent in English composition. In addition to the other requirements for the degree, therefore, all students, in their first year in the Faculty, must register in English 100C. When a student has succeeded in demonstrating his competence in this course, he will be dispensed from further attendance at it.

Students whose native language is not English are also required to write a language test on the basis of which they will be assigned to English 100C or English 150 or both.

MINIMUM REQUIREMENTS FOR THE DEGREE OF BACHELOR OF COMMERCE.

Compulsory Courses	Elective Courses
FIRST YEAR	
English 100	One of French 11*
English 100C	Spanish 11
Mathematics 111	German 1
Economic History (Economics 100)	Italian 11
Accounting 101	Latin 1
	Greek 1

*See page 1226.

SECOND YEAR	
Elements of Economics (Economics 211C)	One of the following: Geography 211 Political Science 211G Psychology 21 Sociology 210 AND One of the following: English French German History Italian Philosophy Spanish
Accounting 201	
Elementary Calculus (Mathematics 224)	
THIRD YEAR	
Money and Banking (Economics 321)	The equivalent of three full courses as follows:
Statistics 361	A continuation course in the Humanities subject selected in the Second year. A Third year course from the following: Accounting, Actuarial Mathematics, Administration and Industrial Organization, Finance, Geography, Industrial Relations, Marketing, Public Administration, Psychology or Sociology. One additional elective.
FOURTH YEAR	
Economic Analysis (Economics 412)	The equivalent of three full courses as follows:
Commercial Law I	A continuation course in the Humanities subject selected in the Second year. Two Fourth year courses from the following: Accounting, Actuarial Mathematics, Administration and Industrial Organization, Finance, Geography, Industrial Relations, Marketing, Public Administration, Psychology or Sociology.

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DESCRIPTION OF COURSES

The following list includes all required courses for the B.Com. degree, as well as the principal courses available as options from which the student may choose to complete his programme. Unlisted courses offered by the Faculty of Arts and Science may also be chosen. *The complete programme of any student must be approved by the Director.*

The list is divided as follows:

(i) Required courses for the B.Com. degree.

(ii) The principal subjects available as Arts and Science continuations.

(iii) The ten options in Commerce and the Social Sciences.

SECTION I

REQUIRED COURSES FOR THE B.COM. DEGREE

ACCOUNTING

101. ELEMENTS OF ACCOUNTING. First year (Full course). Introduction to Books of Account and Financial Statements; theory of debit and credit; principles of double entry; the accounting cycle; recording of transactions in the general journal and general ledger; principles of control accounts; accounts receivable and accounts payable ledgers; provision for bad debts and cash discounts; use of special books of original entry including cash receipts and cash payments books, cheque register, sales and purchase journals, and voucher register; distinction between capital and revenue expenditure; accounting for petty cash; bank reconciliation statements; notes and bills of exchange; inventories; preparation of Profit and Loss Accounts or Statements and Balance Sheets, with adjusting and closing entries.

3 hours. *Professors P. C. Briant and A. R. Marshall*

201. INTERMEDIATE ACCOUNTING. Second year (Full course). Revision of the work of First year at a more advanced level.

Partnerships: accounting for formation, distribution of profits; admission and withdrawal of partners including treatment of goodwill and bonus; partnership dissolution and liquidation; default of a partner; sale of a partnership to a limited company.

Manufacturing accounts and statements; the elements of cost; periodic and perpetual inventories; transfer of goods to trading department at a price in excess of factory cost, with adjustment of inventories.

Single entry: books and accounts required; preparation of financial statements from single entry data; conversion to double entry.

Corporations: legal aspects; types of shares; elementary treatment of issues of capital stock, bonds and debentures; classification of corporate surplus; dividends; correction of profits of prior periods; "clean surplus theory" and "current operating concept of income measurement."

Asset accounting with particular emphasis on cash; receivables; inventories; investments; tangible and intangible fixed assets.

Elementary consideration of financial statements; analysis and interpretation; methods of presentation; statements of source and application of funds.

Advance advice as to accounting techniques; consignment accounting; branch accounting; cost accounting; budgets.

3 hours. *Professors D. R. Patton and A. R. Marshall*

(*Req. B.Com.*)

ECONOMICS

100. ECONOMIC HISTORY. First year (Full course). A survey of the evolution of economic institutions from the ancient empires in Sumaria and Egypt to the outbreak of war in 1939. The course reviews the continuity of economic activities from the early empires through Greece and Rome; the manorial organisation of the early Middle Ages; the revival of towns, commerce and financial institutions; the widening of geographical and intellectual horizons; the industrial revolution and colonization; the economy of the 19th century; the first world war and the breakdown of the war economy after 1931.

3 hours. *Professor F. Cyril James*

211C. PRINCIPLES OF ECONOMICS. Second year (Full course). An introduction to the general principles of economics, covering monetary systems, price levels, national income, production, competition, and international trade.

3 hours. *Professor D. McC. Wright*

321. MONEY AND BANKING. Third year (Full course). Theory and practice of money and credit; organization and operations of financial institutions; monetary policy; concept and function of money; early history of credit institutions; the Peel Bank Act, and the development of the British

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financial system; the National Banking System in U.S. and the evolution of the Federal Reserve System; early development of Canadian banking; effects of World Wars I and II and of the Great Depression on U.S., U.K., and Canadian banking.
3 hours. *Professor J. C. Weldon*

361. ECONOMIC STATISTICS. Third year (Full course). Description of frequency distributions including averages, dispersion, and skewness. Charting and analysis of time series: trend lines, seasonal indexes, and measurement of cyclical fluctuations. Index numbers. Simple linear correlation. An introduction to Statistical Inference covering the following topics; elementary distributions, sampling, tests of statistical hypotheses, and estimation of population parameters.
2 hours lecture, 2 hours laboratory. *Professor E. F. Beach*

412a. ECONOMIC ANALYSIS. Third or Fourth year (Half course). Analysis of the problems of the economy with special reference to Canada: the national accounts; the eclectic theory of the business cycle; a study of Canadian monetary and fiscal policy; Canadian trade agreements.
First term: 3 hours. *Professor D. E. Armstrong*

412b. ECONOMIC ANALYSIS. Third or Fourth year (half course). Analysis of the economic problems of the firm: the basis of the demand curve—consumption by the household; entrepreneurial determination of market demand; types of markets and the price-output behaviour of firms in the different types of markets—agricultural markets, monopolistic markets, etc.; control of monopoly in Canada; special problems of the firm—advertising, forecasting demands, unionization and the supply of labour, location of industry, etc.
Second term: 3 hours. *Professor D. E. Armstrong*

Economics 371b may be taken in place of the compulsory requirement Economics 412b.

371b. CAPITALISM, SOCIALISM AND DEMOCRACY. Third or Fourth year (Half course). A discussion of the inter-relationships of economic and political organization as parts of the pattern of a democratic culture. Readings will include selections from Schumpeter, Hayek, Karl Marx, Wright, Keynes, the American Constitutionalists, and others.
Second term: 3 hours. *Professor D. McC. Wright*

ENGLISH

100. ENGLISH LITERATURE (Full course). A selection of major works in the English literary tradition from medieval to modern times.

A student whose mother tongue is not English and who might, therefore, encounter unusual difficulties with English 100 may apply to the Department of English for permission to postpone the course until the Second

year. If this permission is granted the student will take Commercial Law in the First year.

3 hours (2 lectures and 1 tutorial meeting).

Professor R. S. Walker and Members of the Department of English

100C. ENGLISH COMPOSITION. At the beginning of the session students will be required to take a test in Composition. Those who achieve a high standard in this test may be exempted from English 100C. Those who, while not thus exempted, attain a high standard in the work of the first term may be exempted from the course at the beginning of the second term.

1 hour per week throughout the session.

Miss K. M. Fricker and Members of the Department of English

REGISTRATION IN ENGLISH 100 AND 100C: It is important to register at the start of the session. Classes missed through late registration are counted as absences; no student whose unexcused absences exceed one eighth of the number of meetings in the Course is permitted to write the final examination. Assignments unfulfilled because of late registration cannot be made up; marks obtained for assignments provide 50% of the final grade for the Course.

Those required to repeat the Course are subject to all the regulations governing First year students.

CONDITIONED STANDING: Students conditioned in English 100 and 100C need not attend classes. Special Supplemental Examinations for those in the first year of conditioned standing will be set in April and September on the 100 Course work of the previous year. If his conditioned standing is extended beyond one year, a student must write the 100 Course Examination on the work of the current year. All students of the Second and subsequent years who wish to take part in the work of the Course must register for it at the start of the session.

150. ELEMENTARY ENGLISH COMPOSITION. This course is especially designed to help students whose mother tongue is not English and who have particular difficulty in the writing of correct idiomatic English.

First year students whose mother tongue is not English, and whose proficiency in the use of English is not such, in the opinion of the Department, as to enable them to profit adequately from Course 100C, will be directed to substitute 150 for 100C. First year students not so directed, and students in other years, may, with the permission of the instructor, elect this course; but they cannot thereby gain any credit towards a degree.

2 hours per week throughout the session.

Miss K. M. Fricker and Dr. Slava Klima

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LAW

COMMERCIAL LAW 1. (Full course.) Law of Contracts, Sale, Agency, Partnership, Company Law, and Negotiable Instruments.

3 hours. *Professor R. S. Willis*

(*Req. B.Com.*)

MATHEMATICS

First year students will normally register for Mathematics 111.

Courses 113 and 216 are of a more advanced nature and concentrate on the development of facility in doing difficult and interesting problems. Students who have passed well in Intermediate Algebra and Trigonometry at Junior Matriculation should take 113 or 216 instead of 111.

111. TRIGONOMETRY, ALGEBRA, ANALYTICAL GEOMETRY (Fac. Eng. 1200). (Full course.)

PLANE TRIGONOMETRY. Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformations of sums and products, logatithmic solution of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

ALGEBRA. Variation, progressions, with applications to compound interest, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

ANALYTIC GEOMETRY. The analytic geometry of the straight line and circle.

3 hours. *Staff of Department of Mathematics*

Text: H. Tate, *Elementary Mathematical Analysis* (Pitman).

113. ADVANCED TRIGONOMETRY AND ALGEBRA. (Full course.) Treatment of topics in trigonometry not covered for matriculation, including graphs of trigonometric functions and graphical solution of equations.

Binomial theorem, summation of series, sigma notation, mathematical induction, analytic geometry.

3 hours. *Professor J. Lambek*

Text: H. Tate, *Elementary Mathematical Analysis* (Pitman).

216. ELEMENTARY ANALYTIC GEOMETRY AND ALGEBRA (Full course). Review of trigonometry. The analytic geometry of the straight line and circle. Permutations and combinations, binomial theorem, mathematical

induction, complex numbers, functional notation, remainder theorem, solution of equations.

3 hours. *Mr. N. Oler*

Texts: Robin Robinson, *Analytic Geometry* (McGraw-Hill); T. S. Peterson, *College Algebra* (Harper).

224. ELEMENTARY CALCULUS. (Full course.) Graphical representation; limits, differentiation and integration of elementary functions, with applications to the determination of lengths, areas, and volumes and the solution of simple problems in mechanics, physics, etc.; partial differentiation.

This course is intended to give students of biochemistry, chemistry, economics, and sociology a working knowledge of the elements of calculus.

3 hours. *Professor Herbert Tate and others*

Text: H. M. Bacon, *Differential and Integral Calculus* (McGraw-Hill).

SECTION II

CONTINUATION SUBJECTS

In his Second year a Commerce student is required to select a subject from the following, English, History, Philosophy, French, German, Italian, and Spanish, and to continue his studies in this area through the Third and Fourth years. Each student's programme is subject to the approval of the Director.

ENGLISH

COURSES OPEN TO STUDENTS IN THE SECOND YEAR

200. SHAKESPEARE (Full course). A survey, with special attention to twelve of the plays. Additional reading: D. Nichol Smith, *Shakespeare Criticism;* A. Bradby, *Shakespeare Criticism, 1919-35.*

3 hours. *Professor R. S. Walker*

220. ENGLISH LITERATURE IN THE EIGHTEENTH CENTURY (Full course).

3 hours. *Professor H. G. Files*

(*Not given in 1957-58.*)

230. ENGLISH LITERATURE IN THE NINETEENTH CENTURY (Full course). For Second year students. Recommended as a suitable continuation course.

3 hours. *Professor G. F. Sleigh*

240. AMERICAN LITERATURE (Full course).

3 hours. *Professor H. G. Files*

(*Given in 1957-58, but not in 1958-59.*)

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250. CREATIVE WRITING—INTERMEDIATE (Full course). A study of the elements of prose style and of various aspects of the art of fiction-writing, with practice in the writing of prose.

Hours to be arranged. *Professor Constance Beresford-Howe*

Registration is limited. Students must have the instructor's permission to take this course.

260. DRAMATIC PRODUCTION (Full course). A study of drama from the points of view of director, actor, and designer. The first term will be devoted to discussing and attempting to solve the various problems involved in preparing a given play or plays for production. In the second term the course will include a history of theatrical styles and conventions. The student will be required to present weekly exercises throughout both terms.

3 hours of lectures, plus 3 hours to be devoted to the preparation of exercises.

290. THE GREAT WRITINGS OF EUROPE (Full course). For 1957-58 the period studied will be from 1750 to 1850. Most of the works studied are available in translation.

3 hours. *Professor L. Dudek*

COURSES OPEN TO STUDENTS IN THE THIRD AND FOURTH YEARS

Third and Fourth year students may take any of the courses open to Second year students.

300. OLD ENGLISH (Full course). English Language and Literature up to the Norman Conquest. The course includes readings from Anglo-Saxon prose in the first term; and in the second, a study of heroic poetry. The texts used are: Bright, *Anglo-Saxon Reader* and Klaeber (ed.), *Beowulf*. The course is open to Third and Fourth year students taking Honours in English or in English plus another subject. *Third and Fourth year students in other categories must have the instructor's permission to take the course.*

3 hours. *Professor Joyce Hemlow*

305a. CHAUCER (Half course). A study of *The Canterbury Tales*, their sources and analogues. Robinson's test (the Student's Cambridge Edition of the Complete Works) is used.

First term: 3 hours. *Professor Joyce Hemlow*

305b. CHAUCER (Half course). A study of the dream-vision poems and of the Troilus story.

Second term: 3 hours. *Professor Joyce Hemlow*

310. MIDDLE ENGLISH (Full course). Studies in Middle English Literature (exclusive of Chaucer). The course is open to students who have taken either Old English or Chaucer. Emerson, *Middle English Reader; Middle English Metrical Romances* (ed. French and Hale); *English Lyrics of the 13th and 14th Centuries* (ed. Carleton Brown).
3 hours. *Dr. A. M. Kinghorn*

315b. NON-DRAMATIC LITERATURE OF THE FIFTEENTH AND SIXTEENTH CENTURIES (Half course). Special emphasis is given to the development of poetic techniques and the growth of humanism.
Second term: 3 hours. *Professor Joyce Hemlow*

318a. SIDNEY AND SPENSER (Half course).
First term: 3 hours. *Professor Joyce Hemlow*

318b. MILTON (Half course).
Second term: 3 hours. *Professor A. E. Malloch*

320. ENGLISH LITERATURE IN THE SEVENTEENTH CENTURY (Full course).
3 hours. *Professor A. E. Malloch*

322a. POETRY OF THE ROMANTIC PERIOD: 1780-1840 (Half course). For students who have already taken English 230. Others must have the instructor's permission to take the course.
First term: 3 hours. *Dr. F. S. MacShane*

322b. POETRY OF THE VICTORIAN PERIOD: 1840-1890 (Half course). For students who have already taken English 230. Others must have the instructor's permission to take the course.
Second term: 3 hours. *Dr. F. S. MacShane*

325. THE HISTORY OF THE ENGLISH DRAMA FROM THE BEGINNINGS TO 1642, EXCLUDING SHAKESPEARE (Full course).
3 hours. *Professor R. S. Walker*

330. ENGLISH DRAMA FROM 1660 TO THE PRESENT (Full course).
3 hours. *Mr. Curtis D. Cecil*

331. CONTINENTAL EUROPEAN AND AMERICAN DRAMA FROM IBSEN TO THE PRESENT (Full course).
3 hours.

335. THE ENGLISH NOVEL FROM THE BEGINNINGS TO THE PRESENT TIME (Full course). This course includes some reference to foreign work and to related literary types.
3 hours. *Professor H. G. Files*
(*Given in 1957-58, but not in 1958-59.*)

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336b. THE SHORT STORY (Half course). The history of the short story in English, with some reference to foreign work and to related literary types. Twentieth-century forms and techniques are emphasized.

Second term: 3 hours. *Professor Constance Beresford-Howe*

340. STUDIES IN LITERATURE SINCE 1900 (Full course). Contemporary authors, English and American, with special emphasis on novelists and dramatists.

3 hours. *Professor H. G. Files*

(*Not given in 1957-58.*)

341. CANADIAN LITERATURE (Full course). Lectures on the development of prose literature and poetry in Canada from the beginnings to the present time.

3 hours. *Professors H. MacLennan and L. Dudek*

345. ENGLISH PROSE FROM BACON TO THE PRESENT (Full course). The purpose is to trace the development of English prose expression, to show how the powers of the language have become enlarged as writers have responded to the challenge of new ideas, new inventions in writing techniques, and changes in the market.

3 hours. *Professor H. MacLennan*

355a. THE ART OF POETRY (Half course). A study of poetic forms and techniques. Though the course is intended for students of literature generally, the practising writer will find it useful; students are encouraged to submit work of their own for critical discussion in conference.

First term: 3 hours. *Professor L. Dudek*

365. BRITISH AND AMERICAN POETS OF THE TWENTIETH CENTURY (Full course). A survey of modern poetry.

3 hours. *Professor L. Dudek*

Texts: The collected poetry of W. B. Yeats, T. S. Eliot, Robert Frost, Ezra Pound, W. H. Auden, and Dylan Thomas.

370. CROSS-CURRENTS BETWEEN ENGLISH LITERATURE AND THE EUROPEAN LITERATURES IN THE 18TH CENTURY (Full course). This course deals with the influence of continental literature and criticism on the English neoclassicism of the 18th century, and with the influence of English literature and criticism on European writers from the time of Voltaire to the rise of Byronism. It includes reference to the works of French, German and Italian authors. A reading knowledge of French is a prerequisite.

3 hours. *Dr. Slava Klima*

380a. BIBLIOGRAPHY (Half course). An introduction to the apparatus and methods of scholarship in literary studies. *Open to Honours students: others must have the instructor's permission to take the course.*

Students who propose to proceed to the M.A. in English should note that this is a required course for that degree.

First term: 3 hours. *Professor A. E. Malloch*

395. CREATIVE WRITING—ADVANCED COURSE (Full course). An advanced course open to a limited number of undergraduate students who appear well qualified for mature creative writing. Application for permission to take this course should be made at the beginning of the session. *Registration is limited.*

Hours to be arranged. *Professor H. G. Files*

GERMAN

1. GERMAN LANGUAGE. *Professor Bertha Meyer and Mr. V. R. Block*

2. GERMAN LANGUAGE. *Mr. V. R. Block*

5. GERMAN LANGUAGE. *Professor Bertha Meyer*

For further information and additional courses in German, see the Announcement of the Faculty of Arts and Science.

HISTORY

100. EUROPEAN CIVILIZATION SINCE THE ROMAN EMPIRE AND ITS EXPANSION OVERSEAS. *Professor C. C. Bayley*

205. HISTORY OF COLONIAL EXPANSION.

Second year. *Professor J. I. Cooper*

210. HISTORY OF GREAT BRITAIN.

Second year. *Professor W. S. Reid*

215. HISTORY OF EASTERN EUROPE.

Second, Third and Fourth years. *Professor Milos Mladenovic*

305. HISTORY OF CANADA.

Third year. *Professor J. I. Cooper*

310. THE RISE OF BRITISH INDUSTRIAL DEMOCRACY SINCE 1815.

Third or Fourth year. *Professor W. S. Reid*

315a. THE SLAVS AND THE HABSBURG MONARCHY (Half course).

3 hours. *Professor Milos Mladenovic*

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315b. WAR AND SOCIETY IN EASTERN EUROPE (Half course).
3 hours. *Professor Milos Mladenovic*
(Save by special consent of the Department, this course is open only to students who have previously taken either History 215 or History 320.)

320. THE HISTORICAL BACKGROUND OF CONTEMPORARY EUROPE.
Third and Fourth years. *Professor H. N. Fieldhouse*
(Not given in 1957-58.)

325. SOCIETY OF WESTERN EUROPE FROM THE RENAISSANCE TO THE EVE OF THE FRENCH REVOLUTION.
Third and Fourth years. *Professor P. Zagorin*

326. TUDOR AND STUART ENGLAND.
Third and Fourth years. *Professor P. Zagorin*

415. HISTORY OF SOVIET RUSSIA (Full course).
3 hours *Professor Milos Mladenovic*
(Save by special consent of the Department, this course is open only to students who have previously taken either History 215 or History 320.)

421. HISTORY OF DIPLOMACY, WITH SPECIAL REFERENCE TO BRITISH FOREIGN POLICY SINCE 1815.
Third, and Fourth years. *Professor H. N. Fieldhouse*

For additional courses in History, see the Announcement of the Faculty of Arts and Science.

HISTORY AS A CONTINUATION SUBJECT

Students who wish to take History as a Continuation Subject must consult the Department as to their programme.

PHILOSOPHY

200. INTRODUCTION TO PHILOSOPHY. Second year (Full course). Special weekly conference groups will be held under the direction of Professors Currie and McKinnon, Mr. McCall and Mr. Ross.

An introduction to the chief problems of Philosophy in connection with their development in Greek, Mediaeval, and more especially in modern times.

Lectures and conferences: 3 hours.
Professors T. G. Henderson and J. W. Miller

300. ETHICS. Second year (Full course). The main types of ethical theory.
Lectures and conferences: 3 hours. *Professor Alistair McKinnnon*

310. LOGIC AND SCIENTIFIC METHOD. (Full course.) Deductive logic: introduction to modern symbolic logic with emphasis upon applications. Inductive logic and scientific method: verification, probability, hypothesis, and related topics.

3 hours. *Professor J. W. Miller*

Prerequisite: Philosophy 200, except for recommended students of science.

320. AESTHETICS. (Full course.) A philosophical treatment of certain problems in the spheres of art and criticism. Among the subjects discussed will be: the nature of aesthetic experience and of the artistic object; the interpretation of a work of art; artistic form, the criteria of aesthetic value. Illustrations and examples will be drawn from a variety of different arts, including music and poetry.

3 hours. *Mr. R. S. McCall and Mr. J. D. Ross*

Prerequisite: At least one full course in Philosophy. With the consent of the lecturer, special students may be permitted to take this course without this requirement being fulfilled.

330. PHILOSOPHY OF RELIGION. (Full course.) A discussion of the main problems of the philosophy of religion as considered in the works of various philosophers.

Prerequisite: Philosophy 200.

350. GREEK PHILOSOPHY. Third and Fourth years (Full course). The theory of knowledge and metaphysics of Plato and Aristotle.

3 hours. *Professor T. G. Henderson*

Prerequisite: Philosophy 200 or 300.

360. MODERN PHILOSOPHY. (Full course.) Main problems of modern philosophy, with special reference to the development from Descartes to Kant.

Prerequisite: Philosophy 200. *Professor Cecil Currie*

370. MEDIAEVAL AND RENAISSANCE PHILOSOPHY. (Full course.) Main problems of mediaeval philosophy in their development from St. Augustine to the Fifteenth Century.

3 hours. *Professor Raymond Klibansky*

Prerequisite: Philosophy 200 and 350; or consent of lecturer.

400. ETHICS AND PHILOSOPHY OF POLITICS. (Full course.)

3 hours. *Professors J. W. Miller and Raymond Klibansky*

Prerequisite: Philosophy 300.

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410. PROBLEMS OF LOGIC, EPISTEMOLOGY, AND METAPHYSICS. (Full course.)
3 hours. *Professors Raymond Klibansky and T. G. Henderson*

Prerequisite: Philosophy 200, 310 or 350, 360.

For titles of textbooks, see Announcement of Faculty of Arts and Science.

CONTINUATION COURSES

Students interested in studying Philosophy in conjunction with other subjects are advised to take their courses in Philosophy in the sequences indicated below in connection with the other studies.

1. Philosophy with one or more studies in the social sciences, e.g., economics, history, politics, psychology, and sociology:

Philosophy 200, 300, 310, 330, 350, 400.

2. Philosophy, with one or more studies in the natural sciences, e.g., biochemistry, botany, chemistry, genetics, physics, zoology:

Philosophy 200, 310, 360, 410.

3. Philosophy with studies in English or Foreign Literature:

Philosophy 200, 300, 320, 330, 350, 360.

ROMANCE LANGUAGES

FRENCH

Students registering for First year French have a choice of two courses.

A. *French 11 Advanced*

This course is open to:

(a) students whose first language is French,

(b) those English-speaking students who have obtained at least 80% in their Junior School Certificate or High School Leaving Certificate or the equivalent diploma which secured their admission to the University.

All students who have registered for French 11 will undergo a test at the beginning of the term and those who do not satisfy the requirements will automatically revert to French 13 (Regular).

B. *French 13 Regular*

This course is designed (a) to supplement previous training in oral comprehension, grammar and vocabulary so that students can proceed to further courses with an adequate linquistic equipment (b) to teach the basic facts of French civilization which underlie the development of French literature and fine arts.

11. ADVANCED. General survey of French literature of the 18th and 19th centuries; French composition. (Full course)

3 hours. *Professor Hélène Larivière and other members of the Department*

Texts: Bradley and Mitchell, *Eight Centuries of French Literature* (Appleton-Century-Crofts); Lévèque, *Histoire de la Civilisation française* (Revised Edition) (Holt); Saint-Exupéry, *Vol de Nuit* (Harper); Husson, *La cuisine des anges* (Harper); René Daudon, *French in Review* (Harcourt, Brace and Company).

13. REGULAR (Civilization Section). General survey of French civilization (Geography, History, Arts, Science, Economics and Politics); French Composition. (Full course)

3 hours. *Professor Yvonne Champigneul and other members of the Department*

Texts: Bart, *La France carrefour des civilisations* (Harcourt, Brace); Romains, *Deux Nouvelles* (Ed. Vial) (Dryden); Sonet-Shortliffe, *Review of Standard French* (Harcourt, Brace).

Students are required to possess a good French-English and English-French Dictionary. Harrap's Shorter French-English and English-French Ed. by J. E. Mansion, M.A. is recommended.

SECOND YEAR COURSES

21. SURVEY OF FRENCH LITERATURE FROM THE MIDDLE-AGES TO THE 18TH CENTURY. French composition. (Full course)

3 hours. *Professors Reverchon and Rigault*

Prerequisite: French 11, or permission of the Chairman of the Department.

Texts: Lanson-Tuffrau, *Histoire de la littérature française* (Heath); Bradley-Michell, *Eight Centuries of French literature* (Appleton-Century-Crofts); Molière, *L'Avare* (Petits Classiques Larousse); Whitmarsh-Jukes, *Advanced French Course* (Longmans).

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23. INTRODUCTION TO FRENCH LITERATURE FROM THE MIDDLE-AGES TO THE 20TH CENTURY THROUGH THE READING OF REPRESENTATIVE MAJOR WORKS; French composition. (Full course)

3 hours. *Professors Champigneul, d'Hauteserve, Rigault and Romer; MM. Jackson and Penot*

Prerequisite: French 13, or the equivalent.

Texts: La farce de Maître Pathelin; Molière, *L'Avare;* Voltaire, *Zadig;* Balzac, *Le Père Goriot;* Duhamel, *Chronique des Pasquier* (all in Petits Classiques Larousse); Whitmarsh-Jukes, *Advanced French Course* (Longmans).

Readings: Molière, *Le bourgeois gentilhomme;* Flaubert, *Trois contes* (both in Petits Classiques Larousse).

THIRD YEAR COURSES

31. FRENCH LITERATURE OF THE 17TH CENTURY. (Full course.)

3 hours. *Professor Hélène Larivière*

Prerequisite: French 21 or 23.

Texts: Lanson and Tuffrau, *Histoire de la Littérature Française* (Heath); Peyre and Grant, *Seventeenth Century French Prose and Poetry* (Heath); Seronde and Peyre, *Nine Classic French Plays* (Heath).

Readings: Corneille, *Le Cid* and *Horace;* Racine, *Andromaque* and *Phèdre;* Molière, *L'Ecole des Femmes* and *Tartuffe;* Pascal, *Pensées;* Bossuet, *Oraison Funèbre d'Henriette d'Angleterre;* Mme de Sévigné, *Lettres choisies;* La Fontaine, *Faibles choisies;* Mme de La Fayette, *La Princesse de Clèves.*

32. FRENCH LITERATURE OF THE 18TH CENTURY. (Full course.)

3 hours. *Professor Marie-Thérèse Reverchon*

Prerequisite: French 21 or 23.

Texts: Lanson and Tuffrau, *Histoire de la Littérature Française* (Heath); A. Schinz, *Eighteenth Century French Readings* (Holt); Marivaux, *Le jeu de l'amour et du hasard* (Heath); Voltaire, *Candide* (Holt); Beaumarchais, *Le Barbier de Séville* (Holt).

Readings: Lesage, *Gil Blas* (Extraits); Montesquieu, *Les Lettres persanes;* Voltaire, *Les Lettres philosophiques;* Diderot, *Le Neveu de Rameau;* Beaumarchais, *Le Mariage de Figaro;* Rousseau, *Confessions* (Extraits).

FOURTH YEAR COURSES

41. MODERN FRANCE—GEOGRAPHICAL OUTLINE—POLITICAL, SOCIAL, AND ECONOMIC ASPECTS OF FRENCH LIFE, SINCE 1870. (Full course.) (*Open also to Third year students with a good command of spoken French.*)

3 hours. *Professor J. E. L. Launay*

As no textbooks are available for this course, an ability to take notes in French is essential.

42. LITERATURE AND SOCIAL IDEAS IN THE 19TH CENTURY. (Full course.) (*Open to Third year students also.*)

3 hours. *Professor Louis d'Hauteserve*

(*Given in 1958-59.*)

43. FRENCH LITERATURE OF THE 19th AND 20TH CENTURIES. (Full course.)

3 hours. *Professor Euvrard*

Prerequisite: French 31 or 32.

Texts: Galland and Cros, *Nineteenth Century French Verse* (Appleton-Century-Crofts); Musset, *Lorenzaccio* (Petits Classiques Larousse); Balzac, *Le Père Goriot* (Nelson); Flaubert, *Madame Bovary* (Garnier); Zola, *Germinal* (Petits Classiques Larousse); Gide, *La Porte Etroite* (mercure de France); Castex-Surer, *Manuel des Etudes littéraires françaises: XIXe Siècle* (Hachette).

FRENCH CONTINUATION:

Second year: French 21 or 23.

Third year: French 31 or 32.

Fourth year: French 41, 42, or 43.

SPANISH

11. FIRST YEAR. (Full course)

Grammar, reading and dictation, oral exercises and composition.

3 hours. *Professor Robina E. Henry and Staff*

21. SECOND YEAR. (Full course)

Further readings in literature, translation, free composition, conversation.

3 hours. *Professor G. F. Stegen*

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31. THIRD YEAR. (Full course)

Novelists of XIX Century. Advanced composition, translation, conversation.

3 hours. *Professor L. B. Harrop and Dr. Monica Harvey*

32. SPANISH LITERATURE. Third year (Full course). A "great writers" course covering the masterpieces of Spanish literature.

3 hours. *Professor G. F. Stegen*

41. THE GOLDEN AGE. Fourth year (Full course).

3 hours *Professor L. B. Harrop*

43. SPANISH-AMERICAN LITERATURE. Fourth year (Full course).

3 hours *Professor L. B. Harrop*

Open to Third year students with permission of the Department.

For titles of textbooks, see Announcement of Faculty of Arts and Science.

CONTINUATION IN SPANISH:

Second year: Spanish 21.
Third year: Spanish 31.
Fourth year: Spanish 41 or 43.

ITALIAN

Two sets of courses are offered in Italian literature:

(a) *Courses given in Italian* (Courses 31 and 41): Intended for B.A. students taking Italian as a continuation subject, Italian 11 and 21 (or their equivalent) will be prerequisite for these courses.

(b) *Courses given in English* (Courses 25a and 25b): These are open to all students, and do not require a knowledge of the Italian language.

11. FIRST YEAR. (Full course.) Grammar, reading, oral exercises, and composition.

3 hours. *Professor A. D'Andrea*

Texts: Roncari-Brighenti, *La Lingua Italiana integnata agli stranieri* (Mondadori); Bormioli-Pellegrinetti, *Letture Italiane per Stranieri* (Mondadori); *Il "Piccolo Orlandi", Dizionario Italiano Inglese e Inglese Italiano* (Signorelli).

21. SECOND YEAR. (Full course.) Translation, free composition, conversations, introduction to Italian literature.

3 hours. *Professor A. D'Andrea*

Texts: Roncari-Brighenti, *La Lingua Italiana integnata agli stranieri* (Mondadori); Bormioli-Pellegrinetti, *Letture Italiane per Stranieri* (Vol. II) (Mondadori); Pirandello, *Sei Personaggi in cerca di Autore* (Mondadori).

31. THIRD YEAR—ITALIAN PROSE FROM THE ORIGINS TO OUR TIMES. (Full course.) Readings from selected Italian authors; Italian conversation, composition and elementary stylistics.

3 hours. *Professor A. D'Andrea*

Texts: E. Danadoni, *Breve Storia della Letteratura Italiana* (Signorelli); A. Momigliano, *Antologia della Letteratura Italiana* (Principato); G. Morpurgo, *Le più belle Novelle Italiane*; Migliorini-Chiappelli, *Elementi di Stilistica* (Le Monnier).

Readings and selected passages from: Dante, *La Vita Nuova;* Boccaccio, *Il Decameron;* Machiavelli, *Il Principe;* Castiglione, *Il Cortegiano;* Bandello, *Novelle;* Basile, *Il Pentamerone;* Goldoni, *Le Commedie;* Manzoni, *I Promessi Sposi;* D'Azeglio, *I Miei Ricordi;* Pellico, *Le Mie Prigioni;* Nievo, *Confessioni di un Italiano;* Fogazzaro, *Piccolo Mondo Antico;* Verga, *I Malavoglia, Mastro Don Gesualdo;* Pirandello, *Novelle per un Anno, Maschere Nude;* Panzini, *Viaggio di un Povero Letterato;* Moravia, *I Racconti;* Palazzeschi, *Stampe dell' Ottocente.*

41. FOURTH YEAR—ITALIAN POETRY FROM THE ORIGINS TO OUR TIMES. (Ful course.) Readings from selected Italian authors; Italian conversation, composition and stylistics.

3 hours. *Professor A. D'Andrea*

Texts: E. Donadoni, *Breve Storia della Letterature Italiana* (Signorelli); A. Momigliano, *Antologia della Letteratura Italiana* (Principato); Migliorini-Chiappelli, *Elementi Di Stilistica* (Le Monnier).

Readings and selected passages from: I poeti siciliani, I poeti del "Dolce Stil Nuovo", Dante, Petrarca, Pulci, Poliziano, Lorenzo il Magnifico, Boiardo, Ariosto, Tasso, Parini, Manzoni, Foscolo, Leopardi, Garducci, D'Annunzio, Pascoli, Gozzano, Palazzeschi, Corazzini, Ungaretti, Saba, Montale, Quasimodo.

25a. ITALIAN LITERATURE: DANTE AND THE MIDDLE AGES. (Half course.)
Lectures will be given in English. Students are not required to take the language courses as prerequisites.

First term: 3 hours. *Professor D'Andrea*

Texts: The Portable Dante (The Viking Press); R. A. Hall, *A Short History of Italian Literature* (Linguistica).

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Reference: H. O. Taylor, *The Medieval Mind* (Macmillan); C. S. Lewis, *The Allegory of Love* (Oxford); U. Cosmo, *A Handbook to Dante Studies* (Oxford).

25b. ITALIAN LITERATURE: THE RENAISSANCE AND MACHIAVELLI. (Half course.) *Lectures will be given in English. Students are not required to take the language courses as prerequisites.*

Second term: 3 hours. *Professor D'Andrea*

Texts: Machiavelli, *The Prince and Other Works*, trans. by Allan H. Gilbert (Farrar, Straus); R. A. Hall, *A Short History of Italian Literature* (*Linguistica*).

Reference: The Renaissance Philosophy of Man (Petrarca, Valla, Ficino, Vico, Pomponazzi, Vives), edited by Cassirer, Kristeller and Randall (Univ. of Chicago Press); W. K. Ferguson, *The Renaissance in Historical Thought* (Houghton Mifflin); L. Einstein, *The Italian Renaissance in England* (Columbia University Press); M. Praz, *Machiavelli in England* (Milford).

Italian 25a and 25b may be taken separately or in combination. If taken in combination, they offer an opportunity to study such major writers as Dante, Petrarca, Boccaccio and Machiavelli. Special emphasis will be placed on the cultural contacts of England and Italy during the Middle Ages and the Renaissance.

SECTION III

OPTIONS IN COMMERCE AND THE SOCIAL SCIENCES

ACCOUNTING

(Professor Kenneth F. Byrd - Adviser)

301a. ACCOUNTING. Third year (Half course). More advanced treatment of the work of the first two years. Consignment accounts; branch accounts; statement analysis; statements of source and application of funds; elementary treatment of amalgamations and reconstructions of limited companies.

Professors D. R. Patton and P. C. Briant

301b. AUDITING. Third year (Half course). Definition, accounting and auditing distinguished; objects and advantages of different classes of audit.

Detailed consideration of auditing theory; internal check and the auditor; the rights, duties, and responsibilities of auditors with reference

to leading decisions in the courts; the discovery of errors and fraud; requirements under the Dominion and Quebec Companies Acts; divisible profits and dividends.

Audit procedure at all stages, vouching and verification, checking the postings, auditing the final accounts; programmes and working papers, audit certificate and reports.

Reference is made throughout to bulletins of the Canadian Institute of Chartered Accountants, in relation also to those of the accountancy profession in the United States and Great Britain.

Professors D. R. Patton and P. C. Briant

401 (a) ACCOUNTING. Fourth year (Half course). Revision of the work of previous years.

Joint ventures.

Instalment sales.

Preparation of consolidated accounts of Holding and Subsidiary Companies including sub-subsidiaries.

More advanced treatment of amalgamations (consolidations) and absorptions (mergers) including inter-company holdings; accounting for capital reorganization and reconstruction.

Advanced Accounting Theory in general.

Professor K. F. Byrd

401 (b) AUDITING AND INVESTIGATIONS. Fourth year (Half course). Further treatment of the work of the Third year.

Investigations: for fraud; certification of profits for prospectus purposes; sale of business by sole traders, partnerships, limited companies, with valuation of goodwill; valuation of shares; schemes of conversion to limited liability; schemes of amalgamation (consolidation) and absorption (merger); pooling schemes; schemes of reorganization and reconstruction.

Professor K. F. Byrd

402 (a) COST ACCOUNTS AND BUDGETARY CONTROL. Fourth year (Half course).

COST ACCOUNTS: Definition of cost accounting, its aims and objects; elements of cost, accounting for the purchase, storage, and issue of materials; accounting for labour; schemes of remuneration of labour including incentive schemes, co-partnership and profit-sharing; accounting for overheads, with methods of apportionment to departments and production; double entry cost accounting; job costs; process costs; estimating

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cost systems; standard costs and accounting for variances; closing the accounts at balance sheet date, preparation of operating statements.

BUDGETARY CONTROL: Preparation of the budget, including flexible budgets.

Professor K. F. Byrd

402 (b) INCOME TAX, BANKRUPTCY AND LIQUIDATION, EXECUTORSHIP ACCOUNTS. Fourth year (Half course).

Income Tax: Principles and legal provisions (Dominion and Provincial) and their application to the problems of assessment of individuals, partnerships and limited companies.

Particular attention to the loss carry-back and carry-forward provisions, the treatment of capital cost allowances, the avoidance of double taxation of undistributed income, personal corporations.

Payment of tax by individuals, partnerships and limited companies.

Objections and appeals: the income tax special court and higher courts.

Bankruptcy and Liquidation: Receiver's accounts: the marshalling of assets and liabilities; the statement of affairs; the deficiency account; statement of realization and liquidation; the duties of the trustee.

Executorship Accounts: Accounting for capital and income in deceased estates; statements of charge and discharge; calculation of succession duties (Dominion).

Professor K. F. Byrd

ACTUARIAL MATHEMATICS

(Professor L. P. Wood - Adviser)

337. FURTHER CALCULUS AND DIFFERENTIAL EQUATIONS. (Full course.) Hyperbolic functions, partial differentiation, infinite series, multiple integrals, differential equations.

3 hours. *Professor C. D. Solin*

Prerequisite: Mathematics 224.

Text: H. M. Bacon, *Differential and Integral Calculus* (McGraw-Hill).

436. ALGEBRA AND ANALYTICAL GEOMETRY. (Full course.) Inequalities, theory of equations, probability, determinants. The analytical geometry of the conic sections and of simple three dimensional figures.

3 hours. *Professor Herbert Tate*

Prerequisite: Mathematics 224.

Texts: J. R. Britton and L. C. Snively, *College Algebra* (Rinehart and Co.); Robin Robinson, *Analytical Geometry* (McGraw-Hill).

439. MATHEMATICAL STATISTICS. (Full course.) Probability; statistical independence, expected values, measures of dispersion, discrete and continuous distributions, binomial and normal laws; simple limit theorems; sampling, correlation and regression.

3 hours. *Professor T. V. Narayana*

Prerequisite: Mathematics 224.

Text: H. Cramer, *Elementary Probability and Statistics* (Wiley).

443. NUMERICAL ANALYSIS. (Full course.) Finite differences, interpolation formulae, computation of tables in actuarial mathematics, approximate integration, methods of summation, solving of linear equations and linear inequalities by numerical methods.

Use of mathematical equipment (slide rule, desk calculators, integrimeter, analog computer, electronic computers).

2 hours lectures and 3 hours mathematical laboratory.

Professor Zassenhaus

Prerequisites: Mathematics 224, 337.

Texts: H. Freeman, *Mathematics for Actuarial Students* (C.U.P.); F. B. Hildebrandt, *Introduction to Numerical Analysis* (McGraw-Hill).

ADMINISTRATION AND INDUSTRIAL ORGANIZATION

(Professor W. H. Pugsley - Adviser)

360. INTRODUCTION TO BUSINESS ADMINISTRATION. Third year (Full course). Nature, variety and scope of business; risks and the role of management; legal structure of the firm; the board of directors and trusteeship; determination of objectives and policy-making; internal organization and the delegation of authority; plant location, functional and line production; marketing objectives and channels of distribution; budgets and business finance; the role of research; coordination and control; personnel, social obligations of business and relations with government. Attention will also be given to business case material intended to give the student opportunity to develop analytical ability and decision-making skill.

3 hours. *Professor W. H. Pugsley*

460. PROBLEMS IN BUSINESS ADMINISTRATION. Fourth year (Full course). Selected business case problems embracing the top management viewpoint: problems, policies, plans and personalities; sizing up situations: formulating policies and planning programs of action; organizing administrative personnel and putting plans into action; control, day-to-day administrative problems, follow-up and reappraisal. The problems are mostly as seen from the area where objectives are set for the company

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as a whole, and departmental policies and activities are coordinated. Emphasis is placed on the overall point of view to bring out how any section or department of a business will be managed to make the most effective contribution to the business as a whole.

Prerequisite: Introduction to Business Administration 360.

3 hours. *Professor W. H. Pugsley*

FINANCE

(Professor E. W. Kierans - Adviser)

421. PUBLIC FINANCE. Third or Fourth year (Full course). A seminar course divided into three parts. 1. The theory of public finance. 2. A study of Canadian public finance at the federal, provincial and municipal levels. 3. Special problems of Canadian public finance. Emphasis will be placed on Part 3, which will include consideration of such topics as tax-rental agreements, regional redistribution of income by provincial and federal governments, the effects of the Canadian tax structure on business, and the problem of stabilizing employment in the Canadian federation.

3 hours. *Professor D. E. Armstrong*

424. INTERNATIONAL TRADE AND FINANCE. Third and Fourth year (Full course). 1. Volume and composition of international trade; international commodity markets; international money and capital markets; dynamics of trade and investment. 2. International analysis and international trade; international income flows and the mechanism of adjustment; international income flows and the level of economic activity; international trade and the international allocation of resources; the distribution of income under free and restricted trade; the gains from free and restricted trade; the international spread of income changes. 3. Ends of international economic policy; post-war recovery programmes; international monetary funds, and international monetary and exchange-rate policy; tariffs, trade agreements, and the struggle for multilateralism; the problems and possibilities of international investment; direct and portfolio; Export-Import Bank; International Bank; future of private investment and multilateral trade.

Professor J. C. Weldon

Prerequisite: Economics 321.

425a. CORPORATION FINANCE. Fourth year (Half course.) The capital supply of corporations; money and capital markets; concept and short history of business corporations; their changed structure and increased importance; the instrumentalities of corporation finance (bonds, stocks, hybrid forms and trust certificates); holding and investment

companies; corporation finance in action (promotion, management, expansion, decline, and failure); security markets and their function, organization, operation, and control.

First term: 3 hours. *Professor E. W. Kierans*

425b. INVESTMENT ANALYSIS. Fourth year (Half course.) Role of investment; the investment outlets (government bonds, corporate securities, mortgages, real estate) as seen by the buyer; the concepts of income, risk, value, and appreciation; analysis of specific investment outlets; market behaviour and its analysis; investment methods.

Second term: 3 hours. *Professor E. W. Kierans*

GEOGRAPHY

(Professor F. K. Hare - Adviser)

N.B. *The first digit of each course number shows the academic year for which the course is mainly designed. Students in other years may, however, register for any course provided (i) that they have the prerequisites, and (ii) that general registration requirements are fulfilled.*

211. INTRODUCTION TO HUMAN GEOGRAPHY. (Full course.) The relation of early man to the environment; the beginnings of agricultural and pastoral economies. The major physical zones of the earth, the varieties of human society typical of each, and the place of each zone in world trade and food production.

3 hours.

(In Arts Division) No prerequisite. *Professor G. C. Merrill*

311. NORTH AMERICA. (Full course.) Canada and the United States are divided into a small number of natural regions. In each region the physical environment as a background to man's development is first studied. Then in turn, occupation by Indian and European peoples is discussed, leading up to an examination of the present cultural landscape. The part played by the region in the life of the country and some of its problems are analysed.

3 hours. *Professors J. B. Bird and T. L. Hills*

(In Arts Division) *Prerequisite:* Geography 211.

313b. THE BRITISH ISLES. (Half course.) Economic structure of modern Britain and Ireland; rural and urban land use, industrial districts and communications. Pressure on land and the present-day crises. Detailed studies of specific regions.

3 hours, second term. *Professor F. K. Hare*

(In Arts Division) *Prerequisite*: Geography 211.

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314a. LATIN AMERICA. (Half course.) A study of physical and cultural landscapes of Mexico, Central America, the West Indies, and South America. Human, agricultural and industrial resources; present state of development. The unbalanced economy and inadequate food production of most of Latin America. History and present status of Canadian-Latin American trade.
3 hours, first term. *Professor T. L. Hills*

411a. THE GEOGRAPHY OF INDUSTRY. (Half course.) The influence of geographical factors on economic activity. A survey of the energy sources available to man; the demands made upon these resources in the past. The location of heavy industry, especially the steel industry in North America. A survey of industrial regions, with special reference to North America.
3 hours, first term. *Professor T. L. Hills*

411b. THE GEOGRAPHY OF AGRICULTURE. (Half course.) A study of world agricultural resources. The origins and development of modern agriculture. Crops and agricultural practices in the major agricultural regions of the world, with special attention to the underdeveloped areas. The role of the forests and marine resources in the subsistence economies.
Second term: 3 hours. *Professor T. L. Hills*

415a. GENERAL POLITICAL GEOGRAPHY. (Half course.) Political geography defined. Historical development of views about the relations between environment and nation. The concept of the nation and the geographical approach to the problems of the development and conflict of nations. Interrelations between demographic, economic, and political factors.
First term: 3 hours. *Professor Bogdan Zaborski*

415b. POLITICAL GEOGRAPHY OF EUROPE AND ASIA. (Half course.) Colonial powers and their activities. The changing political map of the world. Geographical approach to some modern national problems. Mackinder's concepts of the Heartland and of the peripheral areas. Continental "core" and maritime outer zone. Geographical aspects of the present division of the world between the West and the communist-held areas.
Second term: 3 hours. *Professor Bogdan Zaborski*

INDUSTRIAL RELATIONS

(Professor H. D. Woods - Adviser)

341a. LABOUR ECONOMICS. Third year (Half course). The origin of labour problems in modern industrial organization; their interpretation by economic theory; the theory of wages and employment.
First term: 3 hours. *Professor J. C. Weldon*

341b. LABOUR INSTITUTIONS. Third year (Half course). The course is designed to supplement the course in labour problems but may be taken separately. It deals with trade unions, co-operative societies, credit unions, labour political movements, labour legislation, and governmental organization in the labour field. Students are advised to take Economics 341a.

Second term: 3 hours. *Professor H. D. Woods*

441. INDUSTRIAL RELATIONS. Third and Fourth year (Full course). An introduction to the problems of employer-employee relations, including the management of personnel, legislation, employee organizations, and the State function and public interest in industrial relations.

3 hours. *Professor H. D. Woods and Mr. L. G. Nicol*

442. COLLECTIVE BARGAINING. Fourth year (Full course). A seminar course involving an intensive study of collective bargaining institutions and techniques, grievance procedures, law and the state machinery for industrial relations. The course covers trade unionism, employers' associations, collective agreements, negotiations, the content of such agreements, conciliation, and arbitration. Experience in other industrial countries is also examined.

Students are admitted only by permission of the instructor.

3 hours. *Professor H. D. Woods and Mr. L. G. Nicol*

N.B.—Students who have taken Psychology 21 in their Second year and who are following the Industrial Relations concentration may substitute approved courses in Psychology or Sociology for Economics 412, Commercial Law or Economics 361.

MARKETING AND TRANSPORTATION

(Professor J. T. Turner - Adviser)

301. ELEMENTS OF MARKETING (PRINCIPLES AND PROBLEMS). Third year. An introduction to the study of marketing institutions, practices, and policies. The course includes a description and appraisal of methods of marketing industrial and consumer goods, a critical examination of distribution costs, and legislation affecting marketing.

3 hours. *Professor J. T. Turner*

401a. RETAIL MANAGEMENT. Fourth year (Half course). A course designed to cover major areas of retail managerial responsibility. Areas such as store location, store layout, retail advertising, personnel policies and buying practices will be considered. Particular attention will,

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by the use of the case method, be given to the development of individual capacities to manage retail activity. Case study will be supplemented by lectures and individual projects.

3 hours. *Professor J. T. Turner*

401b. ADVERTISING MANAGEMENT. Fourth year (Half course). A course designed to consider the field of advertising from the viewpoint of the business executive. Advertising media and techniques will be considered in the light of possible applications in various marketing situations. Extensive use of case materials will be supplemented by lectures and written reports.

3 hours. *Professor J. T. Turner*

402. SALES MANAGEMENT. Fourth year (Full course). An analytical study of the policies and techniques employed in the operation of a sales organization. The approach is from the viewpoint of marketing executives of an enterprise. Extensive use will be made of lectures and case materials in considering problems of product development, merchandising, promoting, planning, organizing and controlling the sales activities of companies.

3 hours. *Professor J. T. Turner*

PSYCHOLOGY

(Professor E. C. Webster - Adviser)

Second year

21. INTRODUCTION TO PSYCHOLOGY (Full course). A biologically oriented outline of the modern approach to psychology.

2 hours and one weekly conference.

Professors D. O. Hebb and Dalbir Bindra

Text: Munn, Psychology (Houghton Mifflin).

Third year

35a. HUMAN ABILITY (Half course). An introduction to the description and theory of human ability, its correlates and the role of learning and heredity in its formation; factors producing changes in ability; sex, race and socio-economic differences.

First term: 3 hours.

34b. THEORY OF PERSONALITY (Half course). Consideration of current theories of personality, normal and abnormal.

Second term: 2 hours and one weekly conference.

Professor Dalbir Bindra

Fourth year

42. SOCIAL PSYCHOLOGY (Full course). Theories of social psychology; social aspects of general psychology, nature and development of group membership; social attitudes, their measurement and modification.

3 hours. *Professor W. E. Lambert*

47a. INDUSTRIAL PSYCHOLOGY. Fourth year (Half course). A critical survey of the applications of psychology to business and industry, with particular reference to the empirical bases of personnel selection and training.

First term: 3 hours. *Professor W. N. McBain*

Prerequisites: Psychology 21; Psychology 35a and 22b, or another full course (The student who lacks Psychology 22b must have some knowledge of the statistics of correlation).

47b. HUMAN RELATIONS IN BUSINESS AND INDUSTRY. Fourth year (Half course). An introduction to the study of interpersonal relations, with illustrations drawn from business; discussions of alternative ways of describing and understanding human interaction.

Second term: 3 hours. *Professor W. N. McBain*

Prerequisites: Two previous full courses in Psychology (It is recommended that Psychology 34b be included in these).

Students in Commerce desiring to prepare for a two year M.Sc. (Applied) degree course in personnel and industrial psychology should consult Professor Webster prior to registering in Fourth year.

PUBLIC ADMINISTRATION

(Professor J. R. Mallory - Adviser)

211G. COMPARATIVE GOVERNMENT. Second year (Full course). An Analysis of the basic concepts of Political Science, with illustrations drawn mainly from the experience of constitutional and dictatorial government as practised in certain modern states.

3 hours. *Professor G. E. C. Catlin*

325b. THE GOVERNMENT OF THE UNITED STATES. Third or Fourth year (Half course). A study of the Constitution, the political institutions, and the working of Congressional Government in the United States.

Second term: 3 hours. *Professor K. B. Callard*

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335a (Political Science). POLITICAL ASPECTS OF ECONOMIC POLICY. Third or Fourth year (Half course). The political framework within which economic policy in a constitutional state must be carried out. Topics to be discussed will include the machinery of anti-trust policy; the independent regulatory commission; the public corporation; central banking; the machinery of budgetary control and fiscal policy; and other forms of government control of business and the techniques of public and legislative control over government policy.

(See also Economics 335b. These two courses are normally intended to be taken together.

First term: 3 hours. *Professor K. B. Callard*

335b (Economics). GOVERNMENT AND BUSINESS. Third or Fourth year (Half course). A study of the relationships of government to the regulation of business with particular emphasis on the problem of maintaining competitive markets. Readings will cover leading law cases, as well as relevant economic literature.

(See also Political Science 335a. These two courses are normally intended to be taken together.

Second term: 3 hours. *Professor Irving Brecher*

341. PUBLIC ADMINISTRATION. Third and Fourth year (Full course). A study of the machinery of government, with examples drawn mainly from Canada, the United States, and the United Kingdom. The increasing size and complexity of modern government; the problem of bureaucracy; central control of policy; the civil service; other agencies of government, regulatory and commercial; the legislature and the administration; the courts and the administration; public control and accountability.

2 hours and conference. *Professor K. B. Callard*

351. GOVERNMENT OF CANADA. Third and Fourth year (Full course). The working of parliamentary federalism in Canada. The problems of federal-provincial relations; the structure of parliamentary government; the evolution of national status.

3 hours. *Professor J. R. Mallory*

SOCIOLOGY AND ANTHROPOLOGY

(Professor David N. Solomon - Adviser)

210. INTRODUCTION TO SOCIOLOGY. Second year (Full course). A general introduction to sociological theory and the analysis of groups in modern society. The course covers comparative cultures, the social development

of the individual, ethnic and class groupings, characteristics of urban life, social change, and institutional structures.

3 hours.

300a. THE COMMUNITY. Third or Fourth year (Half course). Rise of modern urbanism; human ecology and theories of urban growth; community studies on the North American continent.

3 hours. *Professor Aileen Ross*

311b. COMPLEX SOCIETIES. Third year (Half course). Social systems of modern, complex, industrial societies; scientific, economic, political, religious, health, and other institutional structures; voluntary associations; the role of small groups in institutions; bureaucratization of institutions.

3 hours. *Professor David N. Solomon*

411b. SOCIAL STRATIFICATION. Fourth year (Half course). The theory of caste and class divisions in modern society; the structure of class groups in the United States and Canada; the criteria of rank and the symbols associated with rank; the relationship between occupation, education, and class position; problems of upward and downward mobility.

3 hours. *Professor Aileen Ross*

432a. TECHNIQUES OF SOCIOLOGICAL RESEARCH I. Fourth year (Half course). The formulation of research projects; use of documents, census and other available data; collection of data through observation and interviewing; analysis of non-quantitative material.

3 hours. *Professor David N. Solomon*

433b. TECHNIQUES OF SOCIOLOGICAL RESEARCH II. Fourth year (Half course). Introduction to survey research: the selection of samples, construction of questionnaires and scales, analysis and interpretation of data.

3 hours. *Professor David N. Solomon*

440b. POPULATION AND MIGRATION. Fourth year (Half course). Populations and their composition; age, sex, and language groupings; birth rates, death rates, and population growth; the structure of the labour force, and changes therein; international migration, domestic migration, and the forceful transfer of populations; immigration policies. Major emphasis on the Canadian scene.

3 hours.

(*Not given in 1957-58.*)

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450a. OCCUPATIONS AND PROFESSIONS. Fourth year (Half course). Historical development of specialized occupations and professions; occupational mobility; occupational choice; stages of careers; social control of relations with clients, customers, fellow workers, and other interested parties; professional and trade associations; work and the self.

3 hours. *Professor David N. Solomon*

460b. SOCIOLOGY OF INDUSTRIAL INSTITUTIONS. Fourth year (Half course). Industrial and other work institutions; the concept of bureaucracy; operation of bureaucracies; formal and informal organization of the work world; roles of managers, executives, foremen, and workers; the plant and the community; industry and society.

3 hours. *Professor David N. Solomon*

Note: Sociology 450a and Sociology 460b may be regarded as a sequence in the Sociology of Work.

SCIENCE IN ECONOMIC LIFE

This course is designed to give the student an understanding of the various factors in man's physical and social environment that determine his manifold activities and his ability to utilize them to his advantage. In general, these factors are the subject matter of several sciences.

SCIENCE IN ECONOMIC LIFE (Chemistry 70) — (Full course.)

By virtue of two of its main subdivisions, inorganic and organic, chemistry presents a vast field of service to man. In this course the important principles of industrial chemistry are presented by application to commercial processes where all their aspects are studied in relation to their economic importance.

2 hours. *Professor W. H. Hatcher*

McGill University

Montreal

Faculty of Engineering

Including the School of Architecture

1957-1958

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and School of Household Science.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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Faculty of Engineering

OFFICERS AND COMMITTEES

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

David L. Thomson, M.A., Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal*

Robert E. Jamieson, O.B.E., M.Sc. — *Dean of the Faculty of Engineering (retires 1957)*

Donald L. Mordell, M.A. — *Dean of the Faculty of Engineering (from June 1st, 1957)*

John Bland, B.Arch., A.M.T.P.I., F.R.A.I.C., A.R.I.B.A. — *Director of the School of Architecture*

William Bentley, C.G.A., F.C.I.S., R.I.A. — *Bursar*

Colin M. McDougall, D.S.O., B.A. — *Registrar*

Richard Pennington, B.A., Lib.Dip. — *University Librarian*

E. Clifford Knowles, B.D., M.A. — *University Chaplain and Student Counsellor*

R. G. Defries, Ing. E.T.P. — *Superintendent of Buildings and Grounds*

G. A. Grimson, B.Com. — *Chief Accountant*

J. U. MacEwan, M.S. — *Secretary of the Faculty*

A complete list of the teaching staff of the University, including the Faculty of Engineering, is printed as a separate announcement which may be obtained from the Registrar's Office.

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STANDING COMMITTEES OF THE FACULTY

ADMISSIONS

Professor Wilson (*Chairman*), the Registrar, and Professors Morrison, Rosenthall, and Collins

ADMISSION TO ADVANCED STANDING FROM OTHER UNIVERSITIES

Professors J. B. Phillips (*Chairman*), and Bland

ADVISORY COMMITTEE ON THE SCHOOL OF ARCHITECTURE

Professor John Bland (*Chairman*), Messrs. E. I. Barott, H. L. Fetherstonhaugh, J. C. McDougall, and J. J. Perrault

CURRICULUM

Dean Jamieson (*retires 1957*) (*Chairman*), Professors Bland, MacEwan, Morrison, Phillips, and ———— Craig (*Secretary*)

EMPLOYMENT

Professors Morrison (*Chairman*), Pavlasek, and Cherna

ENGINEERING PHYSICS

Professors G. A. Wallace (*retires 1957*) (*Chairman*), ———— Tate, P. R. Wallace, and Watson

INVIGILATION

Professors Schippel (*Chief Invigilator*) and White

LIBRARY

Professors Pavlasek (*Chairman*), de Stein, Howes, Mordell, and Pakalnins

REGISTRATION, STANDING, AND PROMOTION

Professors Mordell (*Chairman*), Bland, Bruce, de Stein, Hatcher, MacEwan, Morrison, Neilson, Pavlasek, Phillips, Rosenthall, and White

SCHOLARSHIPS, BURSARIES, AND LOANS

Professors Bruce (*Chairman*), de Stein (*Vice-Chairman*),
Bland, Marshall, Mordell,
Morrison, Phillips, Rosenthall, and Yates

SUMMER ESSAY PRIZES—THIRD YEAR

Professors Schippel (*Chairman*), Mennie, and White

SUMMER ESSAY PRIZES—FOURTH AND FIFTH YEARS

Professors Neilson (*Chairman*), Edis, Farnell, Morrison,
Phillips, and Yates

TIME TABLE

Professors Joly (*Chairman*), Bland, Covo, and Godard

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Faculty of Engineering

GENERAL INFORMATION AND REGULATIONS

The purpose of the courses of instruction offered by the Faculty of Engineering is to provide training in science and its application to the practice of engineering in its various fields. The School of Architecture is a part of the Faculty of Engineering.

Commencing with the session 1949-50 the training in engineering was changed from one pre-engineering year in the Faculty of Arts and Science and four years in the Faculty of Engineering to five years in the Faculty of Engineering.

COURSES AND DEGREES

ENGINEERING

DEGREES OFFERED: Bachelor of Engineering (B.Eng.), in the departments of Chemical, Civil, Electrical, Mechanical, Metallurgical, and Mining Engineering, and in Engineering Physics, mention being made in the diplomas of the particular course of study pursued.

Students who take the Bachelor of Engineering degree in one course may graduate in another course by attending one or more subsequent sessions and passing the prescribed additional examinations.

PERIOD OF STUDY: Five years.

ENTRANCE QUALIFICATIONS: First year, Junior Matriculation; Second year, Junior and Senior Matriculation with sufficiently high standing. (See pages 1410 and 1411.) The entrance requirements for students of United States schools and for students from Great Britain are stated on page 1412. Students who meet the above requirements apply to the Registrar's Office for admission.

ARCHITECTURE

DEGREE OFFERED: Bachelor of Architecture (B.Arch.).

PERIOD OF STUDY: Six years.

ENTRANCE QUALIFICATIONS: The entrance requirements in Architecture are the same as those for the Engineering courses (see above). The length of the course is six years, the First year being identical with the First year in the Faculty of Engineering.

PRIVILEGES OF THE HOLDERS OF THESE DEGREES

Among the privileges enjoyed by graduates of the Faculty of Engineering the following may be specially mentioned:

(1) By a resolution of the Institution of Civil Engineers of Great Britain, the holders of the degree of B.Eng., who are desirous of becoming Associate Members of the Institution, may be exempted from Parts A and B of the examinations prescribed for admission to the Institution.

(2) By the Dominion Lands Surveys Act, any graduate in civil or mining engineering may have his term of apprenticeship for the Dominion Land Surveyor's certificate shortened from three years to one.

(3) Holders of the degree of B.Eng. are admitted to practise in Quebec upon graduation, provided that they register with the Corporation of Professional Engineers of Quebec upon entering the Faculty. Students entering the Faculty should therefore obtain the necessary application forms from the Dean's Office, complete them, and return them to that office.

(4) The School of Architecture is recognized by the Royal Institute of British Architects and the instruction given meets the requirements of the Board of Architectural Education of that body. Students who obtain the degree of B. Arch. are exempted from the final examination for the associateship of the Royal Institute except in the subject of professional practice, in which they are required to take a paper set by the Institute's examiners. On passing this they are eligible for candidature as "Associate R.I.B.A."

(5) The Province of Quebec Association of Architects admits holders of the degree of B.Arch. to membership, and thereby to practise in the Province, on passing an examination in professional practice and after spending one year in the office of a member of the Association.

GENERAL

The undergraduate work of the University in Architecture and in the following fields of Engineering: Chemical, Civil, Electrical, Mechanical, Metallurgical, Mining and Engineering Physics, is done in the Faculty of Engineering.

AGE OF ADMISSION

Except in special circumstances, no student under the age of sixteen is admitted to the First year, or under the age of seventeen to the Second year.

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MEN AND WOMEN

Both men and women are admitted to the Faculty of Engineering.

THE TWO TERMS

The regular session is divided into two terms, the first starting about the 1st of October and the second starting about the 12th of January (For Calendar, see the General Information Pamphlet). For students entering the First year however, the first term begins a week earlier. Students commencing a year in the Faculty are normally permitted to enter only in the first term.

ENTRANCE REQUIREMENTS

Eligibility to enter the University through Junior or Senior Matriculation is determined fundamentally by reference to the standards maintained by the McGill School Certificate Examinations. These examinations are described in the School Certificate Examinations Announcement, but the names of the required papers are given below. The pass mark is in all cases 50%. Certain other public examinations also recognized for admission to the University are listed on page 1412. A student with incomplete qualifications cannot be admitted as a regular undergraduate.

ENTRANCE THROUGH McGILL SCHOOL CERTIFICATE EXAMINATIONS—

ENTRANCE TO THE FIRST YEAR —Junior Matriculation

For admission to the first year of the B.Eng. courses a candidate must pass the following papers in the University's Junior School Certificate Examination, obtain an over-all average of at least 60%, and obtain at least 60% in every paper written in Mathematics, Physics, and Chemistry, or in subjects taken in lieu of the latter two.

No. of Papers	Subject
2	English
1	General History
2	French *or* German (both papers)
1	Elementary Algebra
1	Elementary Geometry
1	One of the following: Biology; Botany; Chemistry; Physics
2	*Either* Latin *or* Spanish *or* French *or* German (if not already chosen), *or* any two of the following papers not already chosen. (a) Intermediate Algebra (b) Trigonometry

(c) Biology *or* Botany (Biology and Botany may not both be chosen)
(d) Chemistry
(e) Geography
(f) Physics
(g) British History *or* Canadian History (both may not be chosen)
(h) Music *or* Drawing (Music and Drawing may not both be chosen)
(i) North American Literature.

ENTRANCE TO THE SECOND YEAR —Senior Matriculation

English
Mathematics (Algebra, Trigonometry, *and* Co-ordinate Geometry)
Physics
Chemistry
French *or* German* *or* Spanish *or* Greek *or* Latin *or* Biology *or* Geography *or* History.

EXAMINATIONS RECOGNIZED FOR ADMISSION TO THE UNIVERSITY

McGill University recognizes a number of public examinations as conferring, under certain circumstances, Junior or Senior Matriculation standing for admission to the Faculty of Engineering and to other faculties and schools.

The Admissions Committees of the various faculties require generally that:

(1) The certificate has been obtained under no easier conditions than those of McGill Matriculation.

(2) The subjects of the examination and the school course followed are those the University requires.

(3) The school records and confidential reports are satisfactory.

Candidates who wish to enter by certificate should in no circumstances come to the University without first having obtained an official acceptance of their application.

The following gives a brief outline of the certificates and examinations which will be considered on their merits towards meeting the University entrance requirements. For complete details see the School Certificate Examinations Announcement.

*A candidate who has passed the two papers in Junior School Certificate French may obtain Engineering Senior Matriculation standing in German by passing the Junior School Certificate examinations in this subject.

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I. FOR ADMISSION TO THE FIRST YEAR OF THE B.Eng. AND B.Arch. COURSES

CANADA

The recognized Junior Matriculation or equivalent examinations of the various provinces.

GREAT BRITAIN

In the General Certificate of Education, passes in five subjects, including Mathematics and at least one Science, will be the minimum standard for admission. A pass in Religious Knowledge cannot be counted among the five.

UNITED STATES

The tests of the College Entrance Examination Board.

All candidates from the United States must write these tests, preferably at the January or the March session. The Scholastic Aptitude tests and three Achievement tests, chosen with the advice of the applicant's school principal from Intermediate Mathematics, Advanced Mathematics, Physics, and Chemistry, should be taken. Further particulars may be obtained from the Registrar's Office.

MISCELLANEOUS

Other certificates such as those issued by universities or public examining boards will be judged on their merits and accepted if they meet all the University requirements.

II. FOR ADMISSION TO THE SECOND YEAR OF THE B.Eng. AND B.Arch. COURSES

Students from B.Sc. 1 who have completed the required courses of First year Engineering will be considered for admission to Second year Engineering. Applications for admission are to be made to the Registrar's Office.

CANADA

The recognized Junior and Senior Matriculation or equivalent examinations of the various provinces.

GREAT BRITAIN

In the General Certificate of Education, passes in seven appropriate subjects including two at Advanced level. Religious Knowledge cannot be counted in the seven papers.

UNITED STATES

Completion of one year in an approved college with a suitable syllabus and good grades.

APPLICATION FOR ADMISSION

Students are normally permitted to enter at the beginning of the first term only.

Students desiring to enter the Faculty of Engineering must make application on forms which may be obtained from the Registrar's Office. Completed forms must reach the Registrar before August 31st.

It is advantageous for candidates to make preliminary application on the proper forms as early in the year as possible, supplementing this later with the required certificates, transcripts, etc., as these become available.

Applicants should note that clear photo-copies of original documents are acceptable if submitted in duplicate. Sending such copies avoids the risk of losing the originals in the mail.

Students whose native language is not English must satisfy the Registrar that their command of written and spoken English is fluent.

ADMISSION TO ADVANCED STANDING

Students of other colleges or universities who desire to enter any year in this Faculty other than the First or Second, should apply in writing to the Dean of the Faculty not later than July 31st preceding the session it is desired to enter. Such application should state the course the student wishes to enter, and must be supported by an official transcript of the applicant's record at the institution he is leaving, which transcript should be sent directly from the registrar of such institution to the Dean of this Faculty.

To obtain a Bachelor's degree a student must spend at least two years in the Faculty of Engineering.

Graduates of other faculties of McGill University desiring to proceed to the degree of B.Arch., or B.Eng. should consult the Dean of this Faculty for information regarding the regulations governing such procedure.

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REGISTRATION, ATTENDANCE, AND DISCIPLINE

REGISTRATION DAYS—FIRST YEAR

Registration Day for students entering the First year of the Faculty of Engineering is Tuesday, September 17th, 1957. Registration hours are 9:00 a.m. to 12:00 noon, and 2:00 p.m. to 4:00 p.m. All registration takes place in the Macdonald Engineering Building.

After this Registration Day no students will be registered in First year Engineering until Friday, September 27th, 1957. Students registering on this second registration day must pay a late registration fee of $5.00.

Students registering in First year Engineering after Friday, September 27th, 1957, but before Tuesday, October 15th, 1957 must pay a late registration fee of $10.00. After October 15th no student will be admitted except by special permission of the Faculty.

REGISTRATION DAYS—ALL STUDENTS EXCEPT FIRST YEAR

Registration Day for students entering the Second, Third, Fourth and Fifth years of Engineering and Architecture, and Sixth year Architecture is Wednesday, September 25th, 1957. Registration hours are 9:00 a.m. to 12:00 noon, and 2:00 p.m. to 4:00 p.m. All registration takes place in the Macdonald Engineering Building.

After this Registration Day no students will be registered in the Second, Third, Fourth, or Fifth years of Engineering and Architecture or Sixth year Architecture until Friday, October 4th, 1957. Students registering on this second registration day must pay a late registration fee of $5.00.

Students registering in the Second, Third, Fourth or Fifth years of Engineering and Architecture and Sixth year Architecture after Friday, October 4th, 1957, but before Tuesday, October 15th, 1957, must pay a late registration fee of $10.00. After October 15th no student will be admitted except by special permission of the Faculty.

ATTENDANCE—FIRST YEAR

1. Students of the First year are required to attend at least seven-eighths of the total number of lectures or laboratory periods in each course. Those whose unexcused absences exceed one-eighth of the total number of lectures in a course are not permitted to sit for the regular examination in that course, and those whose unexcused absences have exceeded one-fourth must repeat the work in that course.

No student in any year will be permitted to sit for the examinations unless he has fulfilled the requirements of the course to the satisfaction of the Instructor and of the Dean.

Excuses for absences in excess of one-eighth are dealt with only by the Dean and are not entertained except in cases of serious illness (which must be vouched for by a proper medical certificate), domestic affliction, and such other cases as are provided for by special regulations of the Faculty. Medical certificates covering absences must be presented at the Dean's office by the student immediately after his return to University work. Such certificates are filed, and, if they are accepted, the Dean will give the student a statement excusing the absences covered; this must be shown to all professors concerned as promptly as possible.

2. Credit for attendance at any lecture or class may be refused on the grounds of lateness, inattention, neglect of study, or disorderly conduct in the class room or laboratory. These cases are dealt with by the Dean of the Faculty.

3. Lectures commence at five minutes after the hour, on the conclusion of the roll call. After the commencement of a lecture students are not allowed to enter, except with the permission of the professor. If permitted to enter, they report themselves at the close of the lecture and are marked "late". Two lates count as one absence. Lectures end at five minutes before the hour. In cases where it is impracticable to record late attendance, students who are not present at the commencement of the lecture are marked absent.

ATTENDANCE — UPPER YEARS

Students should realize that regular attendance at all scheduled exercises is in their best interests and should make every effort to attend regularly. To allow as much freedom as is consistent with efficient teaching, the following regulations apply:

1. Attendance is not compulsory except in the First year.

2. For other years an instructor may keep records of attendance at laboratory exercises and the like, if he so desires, and is authorized to deal with cases of unsatisfactory attendance at such exercises.

3. Students who have been absent for any reason for three or more teaching days shall report to the Dean's Office immediately upon their return to classes.

4. Lectures begin at five minutes after the hour and end at five minutes before the hour. After the beginning of a lecture students are not admitted, except by permission of the lecturer.

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5. Abuse of these regulations will be dealt with as a matter of discipline by the Dean of the Faculty.

DISCIPLINE

The University regulations concerning discipline are administered by the several Faculties, subject, when necessary, to revision or confirmation by Senate.

FEES

Regular fees and special fees are given in the General Information pamphlet enclosed with this Announcement.

SPECIAL FEES IN ENGINEERING

SUMMER SCHOOLS — Students who are eligible to attend summer schools in May or September as part of their regular course pay $10 as a caution money deposit. Students taking summer schools as extra courses will pay $35, plus a caution money deposit of $10. Students in Mining Engineering pay an additional fee of $50 for the Mining Field School.

Students attending the Summer School in Mechanical Drawing for the first time to make up a deficiency will pay $10.00; for those attending as a supplemental the fee will be $20.00.

DATES FOR PAYMENT

Fees are due and payable at the Chief Accountant's Office between the hours of 9 a.m. and 4 p.m. (Saturday 9 a.m. to 11 a.m.) from Tuesday, September 17th to Wednesday, October 2nd, inclusive.

If desired, fees may be remitted by mail before the above dates, with Fee Coupon attached. The second instalment of tuition fees is due and payable by January 15th. An additional $2 is charged for payment after the specified dates.

Students registering late pay their fees at the time of registration, failing which they become subject to the provisions of the above paragraph.

Immediately after the prescribed dates for the payment of fees, the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Dean will thereupon suspend them from attendance at classes until such time as the fees are paid or satisfactory arrangements are made with the Chief Accountant.

SCHOLARSHIPS, BURSARIES, PRIZES, MEDALS, AND LOAN FUNDS

Details of scholarships, bursaries, and loan funds will be found in the Scholarships, Bursaries, and Loan Funds Announcement which may be obtained from the Registrar's Office.

HEALTH SERVICE

Information concerning the University Health Service will be found in the General Information pamphlet enclosed with this Announcement.

Those engaged in certain branches of mining and metallurgical work are subject by provincial authorities and mining companies to regulations regarding physical fitness, with particular reference to chest conditions and sight. Students registering for courses in Mining or Metallurgical Engineering are therefore required to undergo a special medical examination to determine their fitness. Convenient arrangements are made through the University Medical Officer for such examinations. While assisting students to determine their degree of fitness, the University assumes no responsibility for decisions made by those administering the regulations referred to above.

EXAMINATIONS

See also Regulations concerning Standing and Promotion, page 1508.

1. Final examinations are normally held in all lecture subjects. Class examinations for which credit is given in sessional standing are held at the option of the instructor or at the request of the Faculty.

2. Students who have failed in one or more subjects of the curriculum, except in cases where they are not permitted to register in a subsequent session or as noted in Paragraph 3, are required to make good their standing prior to their registration by writing:

(a) The regular supplemental examinations held immediately before the opening of the session, *or*

(b) The final examinations in a subsequent session.

3. Students who have failed at the completion of a session in subjects totalling not more than 150 marks, may, if given permission by Faculty, register in a subsequent session as conditioned students, see page 1508.

4. The pass standard in examinations in which the candidate has already failed twice is 60 per cent. A conditioned student, unless excused by Faculty, who does not present himself for a sessional or supplemental examination before applying for registration, will be regarded as having failed in that examination and will be required to make 60 per cent at his next attempt.

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5. Special supplemental examinations are not held. Deferred supplemental examinations are given only in exceptional circumstances and by authority of Faculty.

6. Failures in laboratory subjects may under certain conditions be made good by attending special classes during the late afternoons of the first two months of the following session. No student is permitted to attend these schools unless he has made at least 30 per cent in the subject of the school. These classes must be completed and the results reported to Faculty on or before December 1st. A summer school in mechanical drawing for students who are deficient or conditioned in Courses 521 or 541 will be held during September. The fee for this school is $20.

7. Classes of academic standing:

Class I.....80-100 per cent
Class II.....65-79 per cent
Class III.....50-64 per cent

WITHDRAWALS FOR LOW STANDING

Any undergraduate student of the first three years who at the end of the first term has failed to obtain an average of 33 per cent of the weighted value of the examinations regularly scheduled in November and January on the work of that term, may be required to withdraw from the Faculty.

SOCIETIES

1. Upon entrance into the Faculty, all undergraduate students automatically become members of the Engineering Undergraduates Society.

2. The students also support the Society of the Phi Epsilon Alpha. The members of this society are selected from graduates and undergraduates in engineering, and its object is to encourage high standards of character and scholarship.

3. Students in all departments of engineering are strongly recommended to become student members of the Engineering Institute of Canada, for which a fee of $3 is required. They are then entitled to the Journal of the Institute, to the use of the Institute's building, 2050 Mansfield Street, Montreal 2, and to attend the weekly meetings. Students are invited to compete for the prizes which are offered by the Institute.

4. Students in Mining Engineering and in Metallurgical Engineering are strongly recommended to become members of the McGill Mining and Metallurgical Society, which, although a student body, is affiliated with the Canadian Institute of Mining and Metallurgy, the headquarters of which are in the Drummond Building, 1117 St. Catherine St., Montreal 2.

Members of this Society receive the Monthly Bulletin of the Transactions of the Institute free, and are entitled to attend meetings and to compete for prizes offered.

5. Students in Architecture are recommended to become student members of the Province of Quebec Association of Architects, for which a fee of $1.00 is required. They are then entitled to use the library of the Association, 620 Cathcart Street, Montreal 2.

6. Students in Electrical Engineering are strongly recommended to become Student Members of either the Institute of Radio Engineers or the American Institute of Electrical Engineers. Both of these societies have Montreal sections which hold regular meetings at which the speakers are prominent engineers from all over the continent. Student Members receive notices of meetings, and the monthly publication of either society.

7. Students in Mechanical Engineering may become Student Members of either the Society of Automotive Engineers or the Canadian Aeronautical Institute if they wish. Both of these societies have Montreal branches which hold regular meetings.

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Courses of Instruction

Instruction in this Faculty is designed to afford thorough training of a practical as well as theoretical nature in the following branches:

I—Architecture
II—Chemical Engineering
III—Civil Engineering
IV—Electrical Engineering
V—Mechanical Engineering
VI—Metallurgical Engineering
VII—Mining Engineering
VIII—Engineering Physics

A note concerning graduate courses follows the list of undergraduate courses in each department. Details are given in the Announcement of the Faculty of Graduate Studies and Research.

CURRICULUM

The curriculum as laid down in the following pages may be changed from time to time, as deemed advisable by Faculty, and is in no case binding beyond the session covered by this Announcement.

The course for a degree in any branch of Engineering is one of five years, and for a degree in Architecture the course is a six-year one.

The degree in Engineering will not be conferred upon any candidate until he has passed the prescribed examinations of his course, and has submitted satisfactory evidence to Faculty of having had a minimum of six months of experience in practical engineering work. Similar regulations apply to the degree in Architecture. See page 1448. Forms for reporting employment, which must be signed by the employer, are available from the Dean's Office. To report employment for the summer of 1957 they must be returned to the Dean's Office not later than 12 noon, October 26th, 1957.

The first three years of the Engineering courses are devoted largely to Mathematics, Mechanics, Physics, Chemistry, and Drawing, as it is necessary that students in these courses should master the general principles underlying scientific work before commencing professional subjects.

In certain courses, students are required to attend summer schools, following the completion of the work of the session in the Second, Third and Fourth years: for details, see page 1447.

ENGINEERING COURSES

The following schedules set out the various courses as it is expected they will be given during the session to which this Announcement applies, but the Faculty of Engineering reserves its right to alter them if it deems desirable. Notice of such alteration is posted for the information of students.

The subjects of instruction in the First year of the engineering courses, and the number of hours per week devoted to each, are as follows:

Engineering and Architecture

FIRST YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
REGULAR COURSES					
Mechanical Drawing	511	..	..	3	3
Chemistry	902 (11)	3	3	3	3
English	{1000 (100)* / 1001 (100c)}	4	4	..	..
Mathematics	1200 (111)	3	3	..	..
Engineering Problems	1202	..	..	2	2
Physics	1311 (11)	3	3	2	2
Elective to be chosen by student from list below					
Total hours		13 plus elective	13 plus elective	10 plus elective	10 plus elective

*Figures in parentheses give subjects as numbered by Faculty of Arts and Science

Students entering First year Engineering who have passed their Junior Matriculation examinations with a very high standing and who wish to register for one additional subject must make application to do so at the time of applying for admission to the Faculty.

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ELECTIVE COURSES

Biology 1402
French 1491 or 1493
Economic History 1430
Geography 1442
German 1450 or 1451
History 1460
Latin 1425 or 1426
Music 1480
Spanish 1495

Descriptions of these elective courses are given on pages 1469 to 1473.

Engineering

SECOND YEAR

(For Second Year Architecture, see page 1424)

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics	322	2	2	..	..
Surveying	324	..	2	..	..
Summer School	352	..	..	..	..
Mechanical Drawing	521	..	..	3	3
Descriptive Geometry	522	1	1	2	2
El. Physical Chemistry and Laboratory	922	2	2	1	1
Algebra	1220	2	..	..	..
Analytic Geometry	1222	2	2	..	..
Calculus	1224	3	3	..	..
Mensuration and Spherical Trigonometry	1226	..	2	..	..
Physics and Laboratory	1320	3	..	2	..
Physics and Laboratory	1322	..	3	..	2
History of Science	1520	1	..	..	..
Total hours		16	17	8	8

Note: Students who complete Second year Engineering may enter Third year Architecture by making up deficiencies in Architectural Drawing and Elements of Design 115, and History of Architecture 116.

A special summer school in Mechanical Drawing of two weeks duration will be made available for such students as enter Second year with senior matriculation and with a deficiency in Mechanical Drawing 511.

This will be held from Monday, September 9th to Friday, September 20th, 1957.

The subjects of instruction in the Third year for students who intend to enter the regular Civil Engineering or Mechanical Engineering courses, and the number of hours per week devoted to each, are as follows:

THIRD YEAR

Civil and Mechanical Engineering

SUBJECT	Course Number	Lectures hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Surveying	350	2	..	..	..
Surveying Problems	351	..	..	3	..
*Summer School	352	..	..	..	..
Mechanical Drawing	541	..	..	3	3
Mechanics of Machines	542	..	1	..	3
‡Machine Shop I (Mechanical Engineering only)	543	..	..	3	3
Summer Essay	830	..	..	..	..
General Geology	1142	2	2	2†	2
Calculus	1242	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		12	11	13 or 16	13 or 16

*Counted as part of Third year curriculum, but taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Third year (see page 1447).

†During the first few weeks the laboratory work is replaced by field excursions.

‡Students wishing to enter Fourth year Mechanical Engineering who have not taken Machine Shop I will take this course in a Special Summer School in September preceding Fourth year.

See Regulations governing "Promotion," pages 1508 to 1513.

I. ARCHITECTURE

The course for the degree of Bachelor of Architecture extends over six years and aims to provide a basic training in the building arts and sciences. The First year is the regular First year of the Faculty of Engineering. The Second year is the regular Second year of the Faculty of Engineering with an alternative in drawing and History of Architecture. During the Third, Fourth, Fifth, and Sixth years the subjects of Building Construction, Architectural and Structural Design, Acoustics, History of Western Art and Architecture, Electrical and Mechanical Services of Buildings, Economics, and Community Planning are taken. The work of the Sixth year is largely architectural design and professional practice.

FIRST YEAR

As in engineering courses (see page 1421).

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Architecture
SECOND YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Architectural Drawing and Elements of Design	115	1	1	6	6
History of Architecture	116	2	2	..	..
Mechanics	322	2	2	..	..
Surveying	324	..	2	..	..
Summer School	352	..	..	..	..
Algebra	1220	2	..	..	..
Analytic Geometry	1222	2	2	..	..
Calculus	1224	3	3	..	..
Mensuration and Spherical Trigonometry	1226	..	2	..	..
Physics and Laboratory	1320	3	..	2	..
Physics and Laboratory	1322	..	3	..	2
History of Science	1520	1	..	..	..
Total Hours		16	17	8	8

Note: Students who complete Second year Architecture may enter Third year Engineering by making up deficiencies in Mechanical Drawing 521, Descriptive Geometry 522, and Elementary Physical Chemistry and Laboratory 922.

A special Summer School in Mechanical Drawing of two weeks duration will be made available for such students as enter Second year with senior matriculation and with a deficiency in Mechanical Drawing 511.

Architecture
THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Architectural Report	130	..	..	..	..
Building Construction	131	1	1	9	12
Elements of Design	132	..	..	3	3
Freehand Drawing	133	..	..	3	3
History of Architecture	134	2	2	..	..
Introduction to Art	135	3	3	..	..
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Surveying	350	2	..	..	..
Surveying Problems	351	..	..	3	..
*Summer School	352	..	..	..	..
Summer Essay	830	..	..	..	..
Calculus	1242	2	2	..	..
Total hours		13	11	20	20

*Counted as part of Third year curriculum, but taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Third year (see page 1447).

See Regulations governing promotion, pages 1508 to 1513.

Architecture

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Civic Design	145	1	1	..	..
Architectural Report	146	..	..	..	..
Building Construction	147	2	2	..	..
Design A	148	..	..	15	6
Freehand Drawing	150	..	..	3	3
History of Architecture	151	2	2	..	..
Design Workshop	162	..	..	3	3
Elements of Structural Design	360	..	2	..	2
Foundations	362	1	1	..	3
Strength of Materials	373	2	2	..	3
*Electrical Services	490	2	..	..	..
Summer Essay	840	..	..	..	..
Total hours		8 or 10	10	21	20

*Given to combined Fourth and Fifth years in alternate years. Course 490 will be given in session 1958-59.

Architecture

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Social Observation	152	2	2	..	..
Architectural Report	160	..	..	..	..
Design B	161	1	1	15	18
†History of Architecture	163	2	2	..	..
Planning	164	2	2	..	..
Sketching School	165	..	..	..	
Design Workshop	178	..	..	3	.
Strength of Materials	390	1	..	3	..
*Electrical Services	490	2	..	..	..
Mechanical Services	578	1	1	..	3
Summer Essay	850	..	..	..	..
Acoustics of Buildings	1380	1	..	..	2
Engineering Practice I	1561	..	2	..	..
Total hours		10 or 12	10	21	23

*Given to combined Fourth and Fifth years in alternate years. Course 490 will be given in 1958-59.

†Given to combined Fifth and Sixth years in alternate years. Course 179 will be given in 1957-58.

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Architecture

SIXTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Sketching School	166	..	..	..	..
Architectural Report	175	..	..	..	..
Design C	176	..	..	24	27
Design Seminar	177	..	..	2	..
†History of Architecture	179	2	2	..	..
Professional Practice	180	1	1	..	..
Specifications	181	1	1	..	..
Summer Essay	860	..	..	..	..
Engineering Practice II	1580	2	..	..	..
Total hours		6	4	26	27

†Given to combined Fifth and Sixth years in alternate years. Course 179 will be given in 1957-58.

II. CHEMICAL ENGINEERING

The aim of this course is to provide a broad fundamental training, which, when supplemented by practical experience, will make the engineer competent to design and operate industrial plants and to understand the processes.

Part of the time in the Third year is devoted to Chemistry in addition to general engineering subjects. In the Fourth year, time is divided between Chemistry and Engineering, and Chemical Engineering topics are introduced. The Fifth year is devoted mostly to Chemistry and Chemical Engineering, including a course in unit operations.

Students must attend a summer school in Chemical Engineering at the end of the Fourth year.

FIRST AND SECOND YEARS

As in other Engineering courses (see pages 1421 and 1422), except that students do not take the Summer School in Surveying Field Work 352.

Chemical Engineering
THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Chemical Engineering Problems	240	1	1	2	2
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Summer Essay	830	..	..	..	..
Inorganic Qualitative Analysis	942	1	1	3	3
Inorganic Quantitative Analysis	944	1	1	6	6
Organic Chemistry	948	2	2	..	..
Organic Chemistry Laboratory	950	..	..	3	3
Calculus	1242	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		13	13	19	19

See Regulations governing promotion, page 1508.

Chemical Engineering
FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Chemical Technology	260	2	2	..	..
Elementary Chemical Engineering	264	2	2	..	..
Thermodynamics	268	2	2	..	..
‡Summer School	270	..	..	..	..
Strength of Materials	373	2	2	..	3
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Physical Metallurgy	670	1	..	2	..
Summer Essay	840	..	..	..	..
Advanced Organic Chemistry	962	2	2	6	6
High Polymers (extra)	966	1	1	..	..
Intermediate Physical Chemistry Laboratory	968	..	..	3	3
Physical Chemistry	972	1	1	..	..
*Mineralogy	1162	2	2	3	..
*Differential Equations	1260	2	2	..	..
Engineering Reports	1560	1	1	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		17 to 18	18 to 19	14 to 17	15

*Alternates.
‡Taken in four weeks following the close of the Fourth year.

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Chemical Engineering

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Chemical Engineering A	280	3	3	..	..
Chemical Engineering B	282	3	3	..	..
Chemical Engineering Design	284	..	2	..	..
Chemical Engineering Laboratory	286	..	..	6	6
Thermodynamics	288	2	2	..	..
Elements of Electrical Engineering	470	2	2	..	..
Electrical Engineering Laboratory	472	..	..	3	3
*Industrial Administration (extra)	584	..	1	..	..
*Industrial Relations (extra)	586	2	..	..	..
Summer Essay	850	..	..	..	..
Advanced Physical Chemistry	982	2	1	..	..
Advanced Physical Chemistry Laboratory	984	..	..	3	3
Colloid Chemistry	986	1	1	..	..
Electrochemistry	988	1	1	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		18 to 20	15 to 16	12	12

*May not be available in 1957-58.

III. CIVIL ENGINEERING

REGULAR COURSE

The regular course of study is designed to emphasize the fundamental principles of mechanics, strength of materials, design of structures, and hydraulics, at the same time affording an opportunity of applying these principles to practical problems ranging widely over the field of civil engineering. A sound foundation is laid for future specialization. The outlook of the student is broadened by courses in Mechanical, in Metallurgical, and in Electrical Engineering. In the designing courses special attention is given to the interpretation and critical discussion of specifications and to the economic factors involved.

FIRST, SECOND AND THIRD YEARS

As in other Engineering courses (see pages 1421 and 1422), with additional Summer School for students entering Third year (see page 1447).

Civil Engineering (Regular Course)

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Elements of Structural Design	360	..	2	..	2
Foundations	362	1	1	..	3
Hydraulics	364	2	..	3	..
Map Projections (extra)	368	1	..	2	..
Mechanics	370	2	..	..	..
Railway and Highway Engineering	371	2	1	6	3
Strength of Materials	373	2	2	..	3
Surveying	376	2	2	..	..
®Summer School	377	..	..	..	..
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Physical Metallurgy	670	1	..	2	..
Summer Essay	840	..	..	..	..
Engineering Reports	1560	1	1	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		15 or 16	13	14 or 16	14

®Taken in four weeks following the Third year.

Civil Engineering (Regular Course)

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Advanced Structural Design	380	2	2	6	6
*Foundations and Reinforced Concrete	382	..	2	..	3
*Geodesy	384	..	2	..	..
*Geodetic Laboratory	385	..	..	..	3
Hydraulic Machines	386	..	2	..	..
Municipal Engineering	387	4	..	3	..
*Photogrammetry	388	..	2	..	3
Strength of Materials	389	1	2	3	..
Theory of Structures	392	1	2	3	6
†Summer School	394	..	..	..	..
Urban Planning	395	1	1	..	..
Elements of Electrical Engineering	470	2	2	..	..
Electrical Engineering Laboratory	472	..	..	3	3
Industrial Administration (extra)	584	..	1	..	..
Industrial Relations (extra)	586	2	..	..	..
Summer Essay	850	..	..	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		15 or 17	13 or 14	18	18

†Taken in four weeks following Fourth year.
*Alternates; Course 382 *or* Courses 384 and 385 *or* Course 388, to be taken.

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APPLIED MECHANICS OPTION

The courses of study in the applied mechanics option are designed to give rather more emphasis to the field of applied mechanics than is given in the regular civil engineering course. A broad mathematical foundation is provided, permitting a more intensive treatment of technical phases of applied mechanics, including fluid mechanics and vibrations. The work of the regular course in Railway and Highway Engineering, Geodesy, and Municipal Engineering is omitted, but all the basic engineering of the regular course is retained. The training is designed for those students who wish to fit themselves for positions in the field of advanced structural design, and for graduate and research work in this and allied fields.

A student electing this option may revert to the regular civil engineering course at the end of his Third year without making up the regular work missed, provided his standing in all other respects is satisfactory. Reversion at the end of the Fourth year involves making up certain of the work missed. Students who make only low pass standing will be required to revert.

Registration for this option is restricted to students whose general background, and whose standing attained in the Second year, particularly in mathematics, indicate that they can profit by it. Students intending to register for this option should consult with the Chairman of the Department and obtain his approval of such registration prior to September 15th.

Civil Engineering (Applied Mechanics Option)

THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Surveying	350	2	..	..	..
Surveying Problems	351	..	..	3	..
*Summer School	352	..	..	..	..
Summer Essay	830	..	..	..	..
General Geology	1142	2	2	2†	2
Advanced Calculus	1240	3	3	..	..
Vector Methods and Nomography	1246	1	1	..	..
Differential Equations	1260	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		16	14	10	7

*Counted as part of Third year curriculum, but taken in four weeks following the close of the Second year. Students entering from other universities do part of this work in a special summer school before entering Third year (see page 1447).

†During the first few weeks the laboratory work is replaced by field excursions.

Civil Engineering (Applied Mechanics Option)

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Secon term
*Thermodynamics	268	2	2	..	..
Elements of Structural Design	360	..	2	..	2
*Foundations	362	1	1	..	3
Hydraulics	364	2	..	3	.
Mechanics	370	2	..	..	.
Strength of Materials	373	2	2	..	
†Dynamics and Vibrations	381	1	2	..	
†Fluid Mechanics	383	1	2	..	.
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Physical Metallurgy	670	1	..	2	..
Summer Essay	840	..	..	..	..
Theory of Functions	1264	1	1	1	1
Engineering Reports	1560	1	1	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		13 or 14	13 or 14	9	9 or 12

*Alternates. Course 362 is prerequisite to (extra) Course 382, Fifth year.

†Given to combined Fourth and Fifth years in alternate years. Course 381 will be given in 1957-58.

Civil Engineering (Applied Mechanics Option)

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Advanced Structural Design	380A	2	2	6	3
*Dynamics and Vibrations	381	1	2	..	..
†Foundations and Reinforced Concrete (extra)	382	..	2	..	3
*Fluid Mechanics	383	1	2	..	..
Hydraulic Machines	386	.	2	..	..
Strength of Materials	389	1	2	3	..
Theory of Structures	392	1	2	3	6
Elements of Electrical Engineering	470	2	2	..	..
Electrical Engineering Laboratory	472	..	..	3	3
Summer Essay	850	..	..	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		11	12 or 14	15	12 or 15

*Given to combined Fourth and Fifth years in alternate years. Course 381 will be given in 1957-58.

†Foundations 362, Fourth year, is prerequisite.

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IV. ELECTRICAL ENGINEERING

The first three years of the Electrical Engineering Course provide the student with a broad training in the fundamentals that are common to all branches of engineering. In the Fourth year there is a marked increase in the engineering content, with special emphasis on Electrical Engineering. The training is still broad however, and approximately half the time is devoted to non-electrical subjects.

The final year is devoted almost entirely to electrical studies in the two main fields of Power Engineering and Communication Engineering.

Courses in the power engineering field cover the generation, transmission, and distribution of electric power; direct and alternating current phenomena; electrical machinery; electric lighting; electrical measurement; and industrial electronics.

Courses in communication engineering cover the theory and applications of electron tubes, transmission theory, radio engineering, radio design and applied acoustics. These are supplemented by laboratory work in audio- and radio-frequency measurements, and by the testing of communication apparatus.

When a student enters the Fifth year he chooses between the Power Option and the Communications Option. Eight subjects of the Fifth year are common to both options.

FIRST AND SECOND YEARS

As in other Engineering courses (see pages 1421 and 1422).

Electrical Engineering
THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Surveying	350	2	..	..	..
Surveying Problems	351	..	..	3	..
*Summer School	352	..	..	..	..
Electrical Engineering	440	..	2	..	3
Mechanical Drawing	541	..	..	3	3
Mechanics of Machines	542	..	1	..	3
Summer Essay	830	..	..	..	..
General Geology	1142	2	2	2†	2
Calculus	1242	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		12	13	13	16

*Counted as part of Third year curriculum, but taken in four weeks following close of the Second year. Students entering from other universities do this work in a special summer school before entering Third year (see page 1447).

†During the first few weeks the laboratory work is replaced by field excursions.

Electrical Engineering

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics	370	2	..	..	..
Strength of Materials	373	2	2	..	3
Electrical Engineering	460	4	3	..	..
Electrical Engineering Laboratory	462	..	..	12	9
Electron Tubes and Circuits	466	2	2	..	3
Machine Design	577	..	3	..	..
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Summer Essay	840	..	..	..	..
Differential Equations	1260	2	2	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		14	16	15	18

Electrical Engineering

FIFTH YEAR (Power Option)

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Hydraulics	364	2	..	3	..
Communication Engineering (Wire)	480	2	..	..	..
Industrial Electrical Engineering	481	2	..	..	..
Electrical Design	482	1	1	3	3
Electrical Engineering	484	4	4	..	..
Electrical Engineering Laboratory	486	..	..	9	12
Electrical Measurements and Laboratory	489	2	..	3	..
Industrial Electronics	491	..	2	..	..
Power Control and Protection	492	..	3	..	..
*Industrial Administration (extra)	584	..	1	..	..
*Industrial Relations (extra)	586	2	..	..	..
Summer Essay	850	..	..	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
One of the following:					
Hydraulic Machines	386	..	2	..	..
Radio Frequency Transmission Lines	496	..	2	..	..
Principles of Atomic Structure	1394	..	2	..	..
Total hours		17	12	18	15

*May not be available in 1957-58.

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Electrical Engineering

FIFTH YEAR (Communication Option)

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Communication Engineering (Wire)	480	2	..	..	..
Industrial Electrical Engineering	481	2	..	..	..
Electrical Design	483	1	..	3	..
Electrical Engineering	484C	4	2	..	..
Electrical Engineering Laboratory	488	..	..	6	6
Electrical Measurements and Laboratory	489	2	..	..	3
Industrial Electronics	491	..	2	..	..
Radio Design	493	1	..	3	..
Radio Engineering	494	2	2	..	..
Radio Engineering Laboratory	495	..	..	6	6
Radio-frequency Transmission Lines	496	..	2	..	..
Applied Acoustics	497	..	2	..	..
*Industrial Administration (extra)	584	..	1	..	..
*Industrial Relations (extra)	586	2	..	..	..
Summer Essay	850	..	..	..	..
Principles of Atomic Structure	1394	..	2	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		18	12	18	15

*May not be available in 1957-58.

V. MECHANICAL ENGINEERING

The branch of engineering designated as Mechanical is of a broad nature covering many engineering fields. It is concerned with the generation and utilization of power, the design, production, and operation of mechanical devices, and the organization and administration of industrial plants.

REGULAR COURSE

The regular course offers a basic general engineering training to serve as a sound structure on which subsequently to specialize in the problems of any particular industry. In the Fifth year a choice of courses permits emphasis on one of two fields: power and design, or production and management. The laboratory classes and problem periods are designed to integrate with the lecture courses, serving to illustrate the practical application of the basic engineering principles in many different fields.

Arrangements are made for occasional visits to power plants and factories of importance.

FIRST, SECOND, AND THIRD YEARS

As in other Engineering courses (see pages 1421 to 1423), with additional Summer School for students entering Third year (see page 1447), and additional Machine Shop course in Third year.

Mechanical Engineering (Regular Course)
FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics	370	2	..	..	..
Strength of Materials	373	2	2	..	3
Electrical Engineering	470	2	2	..	..
Electrical Engineering Lab.	472	..	..	3	3
Industrial Engineering	561	2	..	2	..
Machine Shop II	563	..	..	5	..
Mechanics of Machines	564	2	2	1	1
Mechanical Engineering Laboratory	569	..	..	3	3
Applied Thermodynamics I	571	2	2	1	1
Summer School (Shop)	572	..	..	..	..
Fluid Dynamics I	573	2	..	..	..
Mechanical Design I	575	..	4	..	6
Engineering Problems	576	..	..	..	2
Physical Metallurgy	670	1	..	2	..
Summer Essay	840	..	..	..	..
Differential Equations	1260	2	2	..	..
Engineering Reports	1560	1	1	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		18	17	17	19

Mechanical Engineering (Regular Course)
FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Hydraulics	364	2	..	3	..
Hydraulic Machines	386	..	2	..	..
Experimental Mechanical Engineering	581	2	..	6	6
Applied Thermodynamics II	593	2	2	3	3
Heat Transfer	594	..	2	..	..
Mechanical Design II	595	2	2	3	3
Summer Essay	850	..	..	..	..
Engineering Law	1580	2	..	..	..
Engineering Practice II	1581	2	..	..	..
and					
Strength of Materials	391	..	2	..	..
Fluid Dynamics II	596	2	2	1	1
Dynamics of Machines	597	2	2	1	1
or					
Industrial Administration	584	..	1	..	3
Industrial Engineering	585	2	2	3	3
Industrial Relations	586	2	2	..	..
Total hours		16	14 or 13	17 or 18	14 or 18

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MECHANICAL SCIENCES OPTION

The course of study in the Mechanical Sciences option is designed to give much more emphasis on the underlying fundamentals of engineering. A broad mathematical and physical foundation is provided, giving the students a good point of departure for advanced engineering studies in a large number of fields. In the final year, training is given to the student in the application of these fundamentals to engineering problems, by seminar discussions and the preparation of a thesis.

The training is designed for those who wish to prepare themselves for creative engineering and for graduate and research work.

Registration will be restricted to students whose general background, and whose standing in the Second year, particularly in Mathematics, indicate that they can profit by it. A very high pass standing will be required. Students who fail to maintain this in the Third year must revert to the regular Fourth year Mechanical Engineering course. Reversion at the end of the Fourth year involves making up certain work missed. Students intending to register for this option should consult with the Chairman of the Department and obtain his approval prior to September 15th.

Mechanical Engineering (Mechanical Sciences Option)
THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Summer School	352	..	..	..	..
Mechanical Drawing	541	..	..	3	3
*Fluid Dynamics I	573	..	2	..	..
Summer Essay	830	..	..	..	..
Advanced Calculus	1240	3	3	..	..
Vector Methods	1246	1	1	..	..
Differential Equations	1260	2	2	..	..
Physics (Electricity and Magnetism)	1340	3	3	..	..
Advanced Heat	1342	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		14	16	8	8

*For students taking this option, Course 573 is a reading course. No lectures will be given.

Note: Students who achieve high standing in this Third year course may, if they wish, enter the Fourth year of Engineering Physics or the Applied Mechanics option of Civil Engineering, provided that they make up work in Electrical Engineering 440, or Surveying 350 and General Geology 1142, respectively.

Mechanical Engineering (Mechanical Sciences Option)

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics	370	2	..	..	..
Strength of Materials	373	2	2	..	3
Electrical Laboratory	445	..	..	3	3
Electricity	467	2	2	..	..
Mechanical Engineering Laboratory I	569	..	..	3	3
Theory and Design of Machines 1	579	2	2	3	3
Applied Thermodynamics II	593	2	2	3	3
*Heat Transfer	594	..	2	..	..
Fluid Dynamics II	596	2	2	1	1
Physical Metallurgy	670	1	..	2	..
Summer Essay	840	..	..	..	..
Theory of Functions	1264	1	1	1	1
Engineering Practice I	1561	..	2	..	..
Total hours		14	15	16	17

*For students taking this option, Course 594 is a reading course. No lectures will be given.

Mechanical Engineering (Mechanical Sciences Option)

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Engineering Analysis	393	2	2	..	..
Mechanical Engineering Lab. II	589	2	..	6	6
Theory and Design of Machines II	598	2	..	3	3
Engineering Problems	599	..	..	12	12
Summer Essay	850	..	..	..	..
Mathematical Physics	1290	3	3	..	..
Atomic Structure	1394	..	2	..	..
Total hours		9	7	21	21

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VI. METALLURGICAL ENGINEERING

REGULAR COURSE

The course of instruction provides training in the chemical, physical, and engineering subjects that form the basis for metallurgical engineering. In the later years, the various branches of theoretical and practical metallurgy are studied.

The course is designed for students who expect to be engaged in the smelting or refining of metals, the production of iron and steel, the melting and casting of metals and alloys, or in engineering work in which the mechanical properties and heat-treatment of metals and alloys are of fundamental importance.

In the Third year instruction is given in mathematics, mechanics, physics, materials of engineering, organic chemistry, inorganic qualitative and quantitative analysis, and metallurgical problems.

In the Fourth year instruction is given in economics, physical chemistry, chemical thermodynamics, mineralogy, mineral dressing, metallurgy, mechanical engineering, and strength of materials.

In the Fifth year instruction is given in engineering law, economics, metallurgy, hydrometallurgy, metallography, machine design, electrical engineering, metallurgical designing, and mineral dressing.

Laboratory accommodation is provided for graduate students who wish to do advanced work in metallurgy for the M.Eng. degree, or M.Sc. degree.

FIRST AND SECOND YEARS

As in other Engineering courses (see pages 1421 and 1422).

Metallurgical Engineering

THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
*Summer School	352	..	..	..	..
Metallurgical Problems and Laboratory	643	1	1	2	3
Summer Essay	830	..	..	..	..
Inorganic Qualitative Analysis	942	1	1	3	3
Inorganic Quantitative Analysis	944	1	1	6	6
Organic Chemistry	948	2	2	..	..
Calculus	1242	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		13	13	16	17

*Taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Fourth or Fifth year (see page 1447).

Metallurgical Engineering

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Inorganic Chemical Technology	266	2	..	..	..
Strength of Materials	373	2	2	..	3
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Metallurgical Laboratory	662	..	..	3	3
Metallurgical Problems	664	..	..	2	2
Metallurgy of Iron and Steel	666	1	1	..	..
Metallurgical Unit Operations	668	2	2	1	1
Mineral Dressing	768	1	1	3	3
Summer Essay	840	..	..	..	..
Chemical Thermodynamics	964	2	2	..	..
Physical Chemistry	972	1	1	..	..
Mineralogy	1161	2	..	3	..
Differential Equations	1260	2	2	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		17	15	15	15

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Metallurgical Engineering

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Elements of Electrical Engineering	470	2	2	..	..
Electrical Engineering Laboratory	472	..	..	3	3
Machine Design	577	..	3	..	..
Metallurgical Laboratory	682	..	..	6	3
Hydrometallurgy	683	3	3	1	1
Extractive Metallurgy	684	2	2	2	2
Metallurgical Colloquium	688	..	1	..	..
Metallurgical Design	690	..	..	..	3
Metallurgical Instrumentation	691	..	2	..	3
Physical Metallurgy	694	2	2	1	1
Mineral Dressing	797	2	..	3	..
Summer Essay	850	..	..	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		15	15	16	16

METAL SCIENCES OPTION

The courses of study in the metal sciences option offer a more rigorous training in mathematics, electronics and chemistry than is given in the regular metallurgical engineering course. A very thorough training in mathematics is provided permitting more intensive treatment of the technical phases of both chemical and physical metallurgy. Of necessity certain courses must be eliminated but the training will particularly fit students for advanced technical work and for graduate and research work in metallurgy.

Students accepted into this option may revert to the regular course on the completion of the work of the previous year. Students who make only low pass standing will be required to revert.

Registration for this option will be restricted to students whose general background and high academic standing indicate that they can profit by it. Students who wish to register for this option must consult with the Chairman of the Department, and obtain his approval prior to September 15th.

FIRST AND SECOND YEARS

As in other Engineering courses (see pages 1421 and 1422)

Metallurgical Engineering (Metal Sciences option)
THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
*Summer School	352	..	..	..	..
Metallurgical Problems and Lab.	643	1	1	2	3
Summer Essay	830	..	..	..	..
Inorganic Qualitative Analysis	942	1	1	3	3
Inorganic Quantitative Analysis	954	1	1	3	3
Advanced Calculus	1240	3	3	..	..
Differential Equations	1260	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		13	13	13	14

*Taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Fourth or Fifth year (see page 1447).

Metallurgical Engineering (Metal Sciences option)
FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Mechanics	370	2	..	..	..
Strength of Materials	373	2	2	..	3
Electrical Engineering Laboratory	465	..	..	3	3
Electron Tubes and Circuits	467	2	2	..	..
Metallurgical Laboratory	642	..	..	3	3
Metallurgical Problems	664	..	..	2	2
Metallurgy of Iron and Steel	666	1	1	..	..
Metallurgical Unit Operations	668	2	2	1	1
Mineral Dressing	768	1	1	3	3
Summer Essay	840	..	..	..	..
Chemical Thermodynamics	964	2	2	..	..
Physical Chemistry	972	1	1	..	..
Theory of Functions	1264	1	1	1	1
Engineering Practice I	1561	..	2	..	..
Total hours		14	14	13	16

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Metallurgical Engineering (Metal Sciences option)
FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Engineering Analysis	393	2	2	..	..
Machine Design	577	..	3	..	..
Hydrometallurgy	680	3	3	..	..
Extractive Metallurgy	681	2	2	..	..
Metallurgical Laboratory	682	..	..	6	3
Metallurgical Colloquium	688	..	1	..	..
Metallurgical Design	690	..	..	..	3
Metallurgical Instrumentation	691	..	2	..	3
Physical Metallurgy	693	2	2	..	..
Studies in Metallurgical Processes	695	..	..	6	3
Summer Essay	850	..	..	..	..
Engineering Law	1580	2	..	..	..
Engineering Practice II	1581	2	..	..	..
Total hours		13	15	12	12

VII. MINING ENGINEERING

The technical requirements of the mining engineer cover the field of basic engineering and geological knowledge. In the junior years of the course, in common with other branches of engineering, emphasis is placed on mathematics, physics, and chemistry. On this background a comprehensive training in engineering and geological principles is superimposed. Thus the course, in addition to preparing students for the varied technical appointments available in the mineral industry, offers a well rounded engineering curriculum.

Timetable permitting, at the discretion of the Chairman of the Department and with the approval of Faculty, some variation of the final year curriculum is permitted in the case of students wishing to emphasize geology, geophysics, mineral dressing, or other specialized branch.

A Field School in mining, mineral dressing, and geology for the Fourth year normally begins after the close of the April examinations. The School visits some important mining districts where there is an opportunity to examine a variety of mining and milling operations. The fee for this school is not included in the regular tuition and is

normally about fifty dollars. The actual amount is established annually when the itinerary and related factors are known, and is payable to the University on or about April 15th immediately preceding the trip.

Facilities are available for graduate students undertaking advanced work in many of the specialized branches of the mineral industry. The Department possesses two Research Fellowships open to graduates of the Department who show suitable ability. (*See Scholarship Announcement.*)

Refer to page 1417 for regulations regarding physical examination.

FIRST AND SECOND YEARS

As in other Engineering courses (see pages 1421 and 1422).

Mining Engineering

THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
Surveying	350	2	..	..	..
*Summer School	352	..	..	..	..
Mining	740	1	..	..	..
Summer Essay	830	..	..	..	..
Inorganic Qualitative Analyais	942	1	1	3	3
Inorganic Quantitative Analysis	954	1	1	3	3
General Geology	1142	2	2	2†	2
Mineralogy	1144	2	2	3	3
Calculus	1242	2	2	..	..
Physics	1340	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		17	14	16	16

*Taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Third year (see page 1447).

†During the first few weeks the laboratory work is replaced by field excursions.

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Mining Engineering
FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Elements of Structural Design	360	..	2	..	2
Hydraulics	364	2	..	3	..
Strength of Materials	373	2	2	..	3
(1)Summer School (Survey)	377	..	..	..	..
Mechanical Engineering	566	2	2	..	..
Mechanical Engineering Laboratory	569	..	..	3	3
Physical Metallurgy	670	1	..	2	..
Mine Mapping	760	..	..	..	3
Mine Surveying	761	2	..	..	..
Mining Engineering I	762	2	2	..	..
(2)Summer School (Fire Assaying)	766	..	..	..	..
Mineral Dressing	768	1	1	3	3
Ore Analysis	770	..	..	3	3
Summer Essay	840	..	..	..	..
Petrology	1164	2	..	3	..
(3)Summer School (Field Geology)	1165	..	..	..	..
Structural Geology	1166	..	2	..	3
Engineering Practice I	1561	..	2	..	..
Total hours		14	13	17	20

(1)Taken in two weeks following the Third year session.
(2)Taken in two weeks following the Fourth year session.
(3)Taken in two weeks following two weeks of survey Summer School 377.

Mining Engineering
FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Electrical Engineering	470	2	2	..	..
Electrical Engineering Laboratory	472	..	..	3	3
General Metallurgy	686	2	2	..	..
Mine Design	782	2	1	4	5
Mine Finance and Cost Control	784	..	2	..	..
Mining Colloquium	786	..	1	..	..
Mining Engineering II	788	2	3	..	..
Mining Engineering Problems	790	..	..	2	2
(1)Summer School (Field Trips)	794	..	..	..	..
Mineral Dressing	797	2	..	3	..
Mineral Dressing	798	..	1	..	3
Summer Essay	850	..	..	..	..
Geology of North America	1180	2	2	..	2
Ore Deposits	1182	2	2	2	3
Geophysics	1360	2	..	..	..
Engineering Practice II	1580	2	..	..	..
Engineering Law	1581	2	..	..	..
Total hours		20	16	14	18

(1)Normally taken in two to three weeks at the close of the Fourth year, following Summer School 766.

VIII. ENGINEERING PHYSICS

The course leading to the degree of B.Eng. in Engineering Physics is planned for those students who wish to fit themselves for positions in the fields of design, development, and research. The course is arranged for students specializing in Electrical Engineering and Electrical Physics.

Since the opportunities in the fields of design, development, and research are in general limited to those who show a marked aptitude for both technical and theoretical work, registration in Engineering Physics is restricted to those students who have completed Second year Engineering with high second-class standing or better. Moreover, students who do not maintain an average of 65% are not allowed to continue in Engineering Physics. They may, however, transfer to Electrical Engineering at the end of any year if they have obtained a minimum of 50% in all courses of that year.

SECOND YEAR

As in other Engineering courses (see page 1422).

Engineering Physics

THIRD YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Materials of Engineering	342	1	1	..	..
Mechanics (Analytical)	348	2	2	2	2
Mechanics (Graphics)	349	..	..	..	..
*Summer School	352	..	..	..	..
Electrical Engineering	440	..	2	..	3
Summer Essay	830	..	..	..	..
Advanced Calculus	1240	3	3	..	..
Vector Methods and Nomography	1246	1	1	..	..
Differential Equations	1260	2	2	..	..
Physics	1340	3	3	..	..
Heat and Thermodynamics	1342	2	2	..	..
Physics Laboratory	1344	..	..	3	3
Engineering Reports	1540	1	1	..	..
Total hours		15	17	5	8

*Counted as part of the Third year curriculum, but taken in four weeks following the close of the Second year. Students entering from other universities do this work in a special summer school before entering Third year (see page 1447).

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Engineering Physics

FOURTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Strength of Materials	373	2	2	..	3
Electrical Engineering	460	4	3	..	..
Electrical Engineering Laboratory	464	..	..	9	6
Electron tubes and Circuits	466	2	2	..	3
Summer Essay	840	..	..	..	..
Theory of Functions	1264	1	1	1	1
Electron Physics	1362	2	..	..	..
Advanced Light	1364	2	1	3	3
Properties of Matter (extra)	1366	..	1	..	..
Statics and Dynamics	1368	3	3	..	..
Engineering Practice I	1561	..	2	..	..
Total hours		16	14 or 15	13	16

Engineering Physics

FIFTH YEAR

SUBJECT	Course Number	Lecture hours per week		Laboratory, etc., hours per week	
		First term	Second term	First term	Second term
Communication Engineering (Wire)	480	2	..	..	..
Radio Engineering	494	2	2	..	..
Radio Engineering Laboratory	495	..	..	6	6
Summer Essay	850	..	..	..	..
*Fluid Dynamics (extra)	1282	3	..	..	..
*Advanced Dynamics (extra)	1284	..	3	..	..
Atomic Physics	1382	2	2	3	..
Electrical Measurements	1384	1	2	3	3
Electromagnetic Theory	1388	2	1	..	..
Mathematical Physics	1390	3	3	..	..
Radioactivity	1392	..	2	..	3
Total hours		12	12	12	12

*May not be available in 1957-58. No student may take more than one of these extras.

SUMMER SCHOOLS

Undergraduates are required to attend Regular Summer Schools as specified below. The times at which they are held, and the work covered, are set forth in detail under the course numbers referred to.

See note under fees, page 1416.

Except as noted, classes are expected to begin on or about April 25th and close about May 24th.

REGULAR SUMMER SCHOOLS

CURRICULUM	Students Entering					
	Third year		Fourth year		Fifth year, and Sixth year Architecture	
	Course	Page	Course	Page	Course	Page
Architecture	352	1463	..	..	165 166	1454 1454
Chemical Engineering	..	..	..	..	270	1456
Civil Engineering:						
Regular Course	352	1463	377	1465	394	1468
Applied Mechanics option	352	1463	..	..	..	..
Electrical Engineering	352	1463	..	..	..	..
Mechanical Engineering	352	1463	572	1489	..	..
Metallurgical Engineering	352	1463	..	..	..	..
Mining Engineering	352	1463	377 1165	1465 1482	766 794	1499 1500
Engineering Physics	352	1463	..	..	..	..

SPECIAL SUMMER SCHOOLS

As it is seldom practicable for students admitted to advanced standing in McGill University from other colleges to attend the May Summer School preceding the work of the year to which they are admitted, the following arrangements have been made for such students, but it must be understood that they apply only to students who have not previously been in attendance in the Faculty of Engineering.

(a) Students entering the Third year from other universities, except in Chemical Engineering, are required to attend a Summer School in Surveying which opens on or about September 11th, 1957 preceding the work of the Session. Additional work will be required in the following year to complete the course.

(b) Students entering the Fourth year of the course in Mechanical Engineering will be required to attend a Summer School in Machine Shop Work extending over a period of about four weeks, commencing September 3rd, 1957.

(c) Students entering the Fourth year in the course in Civil or Mining Engineering are required to attend a Summer School in Surveying which opens on or about September 11th, 1957.

(d) Students entering the Fifth year in Civil Engineering are required to attend a Summer School in Surveying which opens on or about September 11th, 1957.

(e) Students entering the Fifth year in Mining Engineering are required to submit evidence that they have had at least six months' practical experience in Mining Work.

(f) Students entering Fifth year Architecture are required to attend Sketching School 165 commencing September 14th, 1957.

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EMPLOYMENT AND SUMMER ESSAYS

EMPLOYMENT

Students in Engineering are required to submit to the Faculty evidence of having had at least six months of suitable experience in practical engineering work before receiving their degrees (see page 1419). For students in Architecture the requirement is six months of experience appropriate to the profession. Evidence of employment must be submitted on forms obtainable at the Dean's Office, to be signed by the employer. Forms reporting employment for the summer of 1957 must be handed in at the Dean's Office not later than noon on Saturday, October 26th, 1957.

SUMMER ESSAYS

All students in Engineering and Architecture must submit Summer Essays 830, 840 and 850, on entering Third, Fourth, and Fifth years respectively. Students in Architecture must in addition submit Summer Essay 860, on entering Sixth year.

Summer Essays are regarded as an important part of the curriculum and a high standard is exacted. They are judged on their subject matter, on their literary style, and on the evidence they show of thoughtful observation and preparation.

Summer Essays are normally written on a topic drawn from the experience of the student during his summer work. Students should take advantage of every opportunity during their summer engagements to gather material for their essays. If a student's summer experience does not provide a reasonable topic for an essay, students in Engineering may write on a suitable topic connected with engineering, scientific, or industrial work, subject to the regulation in the following paragraph. Similarly, students in Architecture may write on an appropriate architectural topic, subject to the same regulation, if a satisfactory essay cannot be based on their employment experience.

No essay compiled entirely from matter already published will be accepted from any student unless ACCOMPANIED by a letter of approval from the Chairman of his Department, or, in the case of essay 830, written in the summer following Second year, from the Chairman of the Department naturally concerned with the topic upon which the student proposes to write. Such approval is not usually given unless the proposed essay will serve a really useful purpose by bringing together important information otherwise difficult of access.

Data from books and from other sources, may, however, be used or even quoted verbatim in reasonable quantity, provided acknowledgement is made and direct quotations are indicated. Thanks for assistance, advice, drawings, photographs, and the like received by the writer from others should also be given under "Acknowledgements".

Essays should be from 2,000 to 5,000 words in length. The student is therefore strongly advised to select a topic which can be treated with reasonable completeness within these limits.

Unless absolutely essential, it is not desirable to accompany essays with samples and specimens. Careful writing and adequate illustration will usually make these unnecessary.

Essays must be TYPEWRITTEN on one side only of 8½ x 11-inch white paper of good quality and bound in the standard cover.

The schedule by which essays are ranked is as follows:

A—Physical Presentation

Title, name, course, and year on cover; table of contents or index; list of illustrations, drawings, maps, etc.; suitability of illustrations, etc.; neatness—15 to 25 marks.

B—Content

Suitability; originality; evidence of accurate observation; authority and accuracy—30 to 40 marks.

C—Organization

Acknowledgements; headings and sub-headings; tables; references; bibliography—15 marks.

D—Composition

Grammar; spelling; phraseology; style and interest; clarity and lucidity —30 marks.

After ranking, essays, except those to be considered for prizes or those which must be rewritten, are returned to the writers. Essays considered for prizes, but not awarded any, are also returned, but at a later date. Prize-winning essays become the property of the Engineering Undergraduates' Society and are filed for permanent reference in the Engineering Library. Any student who does not wish to surrender his essay should, therefore, indicate by letter ATTACHED THERETO that it is not to be considered for a prize.

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Students are encouraged to submit their essays to the Engineering Institute of Canada, to the Canadian Institute of Mining and Metallurgy, to the Institute of Radio Engineers, or to the Society of Chemical Industry in competition for prizes offered by these institutes. A student wishing to enter one of these competitions should so indicate by letter ATTACHED TO his essay.

Summer essays, unless submitted by mail, must be handed in before the close of Registration (4:00 p.m.) on Registration Day, Wednesday, September 25th, 1957, to the staff member or other officer by whom the student is registered. Essays may be submitted by mail to the Dean's Office, Engineering Building. They must be received before 5:00 p.m. on Tuesday, September 24th, 1957.

Students who do not submit or hand in summer essays before these stated times will be regarded as having failed the essay for their year. They must then submit an essay with a request that it be accepted as a supplemental, enclosing a $10.00 supplemental fee.

Descriptions of Courses

SCHOOL OF ARCHITECTURE

The School of Architecture is under the administrative jurisdiction of the Faculty of Engineering.

Director and Professor	JOHN BLAND
Associate Professors	PETER COLLINS HAROLD SPENCE-SALES
Assistant Professors	RAY T. AFFLECK WATSON BALHARRIE GORDON WEBBER A. STUART WILSON
Sessional Lecturers	GUY DESBARATS W. AUSTIN JOHNSON JOHN SCHREIBER HAZEN SISE ORSON WHEELER

Advisory Committee (*see page 1405*)

SECOND YEAR

115. ARCHITECTURAL DRAWING AND ELEMENTS OF DESIGN. (a) Descriptive geometry; orthographic projection; simple pictorial representation; perspective by various methods; shades and shadows; interpenetrations;

developments; lettering. (b) Basic visual elements, line, form, colour, texture. Practical experiments in water colour, tempera, dyes, and inks. 1 lecture and 6 hours problems per week, session.

Professor Webber and Mr. Schreiber

116. HISTORY OF CLASSIC, BYZANTINE AND MEDIAEVAL ARCHITECTURE. A survey of the development of architectural manners in Europe.
2 lectures per week, session. *Professor Collins and Mr. Wheeler*

THIRD YEAR

130. ARCHITECTURAL REPORT. Students are required to prepare a paper during the session on some aspect of historical architecture. It may be based upon references in literature or other available library records, or it may be a study of technique, material, structure, or function in historic buildings as revealed by available records. Related to Course 134.

Professor Collins

131. BUILDING CONSTRUCTION. Simple architectural form is studied in terms of human purpose, and building materials and techniques. A number of small architectural and construction problems are given to intensify the student's grasp of spatial relationship and constructive sense. An intensive study of a small project is carried out. The design is evolved from the basic conditions of a given problem. Presentation drawings are made and then a set of working drawings is prepared. These are done in order to gradually unfold wood and masonry construction techniques. A small scale model showing all structural members of the building frame is constructed by each student. Studies in line and colour are made of all projects. Practical experiments in construction are carried on in the Laboratories of the Montreal Building Trades Apprenticeship Centre under supervision of McGill Staff. 1 lecture and 9 hours problems per week, first term; 1 lecture and 12 hours problems per week, second term. *Professor Wilson and Mr. Desbarats*

Textbooks: Frame Construction Details (Nat. Lumber Mfg. Ass'n); Gay and Parker, Materials and Methods of Building Construction (Wiley); Graf, Data Sheets (Reinhold); Ramsey and Sleeper, Architectural Graphic Standards (Wiley).

132. ELEMENTS OF DESIGN. Applications of colour and texture experiments to renderings of planes in space. Designing and producing three dimensional tactile structures and the applications of visual aids in the presentation of architectural projects.
3 hours per week, session. *Professor Webber*

133. FREEHAND DRAWING AND MODELLING. Drawing, painting, modelling, and experiments in the forms and techniques of historic manners. Related to Course 135. Classes held in the Montreal Museum of Fine Arts.
3 hours per week, session. *Staff, Montreal Museum of Fine Arts*

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134. HISTORY OF 16TH, 17TH AND 18TH CENTURY ARCHITECTURE. A survey of important buildings in Italy, France and England. Related to Course 130.

3 lectures per week, session. *Professor Collins and Mr. Wheeler*

135. INTRODUCTION TO ART. (Arts and Science 201) The aim of this course to develop the student's understanding and perception of the work of art as a visual medium of expression; and to observe and analyze the sequential development underlying the history of art and its principal epochs up to the present time.

Lecture course supplemented by discussions, written reports, and assigned reading.

3 lectures per week, session. *Professor Judkins*

830. SUMMER ESSAY. (See pages 1448-50)

FOURTH YEAR

145. CIVIC DESIGN. The elements of form in buildings; buildings and their surroundings; design in the urban setting.

1 lecture per week, session. *Professor Spence-Sales*

146. ARCHITECTURAL REPORT. Related to Course 151. Continuation of Course 130, but the chosen subject should be related as far as possible to present-day problems. *Mr. Sise*

147. BUILDING CONSTRUCTION. Various structural systems and their architectural significance; construction and finish of walls, floors, ceilings, and roofs; provision for mechanical services; by-law requirements. In continuation of Course 131, students carry out a number of full scale mock-ups of parts of their design projects, thus familiarising themselves with architectural detail and workmanship. In the studio, detailed working drawings of one of the projects are prepared. Related to course 148.

2 lectures per week, session; 8 hours problems per week, first term.
Professor Balharrie and Mr. Desbarats

Textbooks: Huntingdon, Building Construction (Wiley); National Building Code (Queen's Printer).

148. DESIGN, CLASS A. Design and planning aspects of buildings of timber, load bearing masonry and simple frame. Students are given 4 to 5 specific problems during the session, covering buildings of domestic, recreational, commercial or civic character. Each problem is discussed in general terms of functional requirements and visual expression with reference to siting, structure and the use of materials. Research is carried out into similar types of buildings existing in Canada and elsewhere and preliminary studies are presented for criticism and comment. After this,

a set of final presentation drawings is prepared including perspectives and design details to a large scale. 5 to 6 one-day problems of architectural or purely decorative character are introduced during the session to develop the imagination and the ability to produce quick, effective presentation drawings.
15 hours per week, first term; 9 hours per week, second term.
Mr. Schreiber

150. FREEHAND DRAWING AND MODELLING. Drawing, painting and modelling with practical experiments in design form. Continuation of Course 133. Classes held in the Montreal Museum of Fine Arts.
3 hours per week, session. *Staff, Montreal Museum of Fine Arts*

151. HISTORY OF MODERN ARCHITECTURE. The architectural consequences of the Industrial Revolution: development of new materials and techniques of construction, of new social requirements in a changed environment; the psychology of stylistic revivalism; the divorce between architecture and engineering; the changing role of the architect, etc. Despite the recent birth of a new style, the student is encouraged to regard the dynamic interaction of social and technological forces as a continuing process in which he himself is involved and towards which he should adopt a positive viewpoint.
2 lectures per week, session. *Mr. Sise*

162. DESIGN WORKSHOP. Study of light in relationship to architecture; model-making for light experiments; photographic recordings; photograms. Design of structures to illustrate objects in spatial relationship; solid, linear, and transparent objects.
3 hours per week, session. *Mr. Webber*

840. SUMMER ESSAY. (See pages 1448-50.)

FIFTH YEAR

152. SOCIAL OBSERVATION FOR ARCHITECTS. Architecture in cultural perspective; community planning and culture change. Ethnic groups in the urban community. Characteristic patterns of race relationships, and the requirements of such groups for housing. Slum organization; personality types and characteristic social organization in designated segments of the community. The general patterns of the urban community; processes of growth and change. The role of interest groups, pressure groups and communication in the development of the urban community. Architecture and the organization of work; types of job openings for architects. Types of careers and stages of careers among architects.
1 hour conference per week, session. *Professor Westley and Staff*

160. ARCHITECTURAL REPORT. Related to Course 163. Continuation of Course 146. *Professor Eland*

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161. DESIGN, CLASS B. Continuation of course 148. Problems are of more complex nature structually and from the planning point of view. One problem is carried through to working drawings and more detailed consideration of structure.
1 lecture and 15 hours problems per week, session. *Professor Affleck*

163. HISTORY OF ARCHITECTURE IN CANADA. French, British and American influences in the Maritime Provinces, Quebec and Ontario. Course is related to Course 160.
2 lectures per week, session. *Professor Bland*

164. PLANNING. Elements of town planning; surveys of selected districts of Montreal. The course consists of environmental studies directed at a wider understanding of architectural and civic design.
2 lectures per week, session. *Professor Spence-Sales*

165.
166. } SKETCHING SCHOOL. Students are required to attend two sketching schools during their course. The school is usually conducted out of town so that students are given the opportunity of examining and making graphic records of an unfamiliar district. About 10 days; opening date for 1957-58, September 14th, 1957. *Professors Webber and Wilson*

178. DESIGN WORKSHOP. Special experiments in which the individual student presents a subject as a model, such as a theatre stage, a small house, furniture, a mural, a pamphlet, etc.
3 hours per week, first term. *Professor Webber*

850. SUMMER ESSAY. (See pages 1448-50.)

SIXTH YEAR

175. ARCHITECTURAL REPORT. Related to Course 179. Continuation of Course 160. *Professor Bland*

176. DESIGN, CLASS C. Complex buildings or groups of buildings usually including a housing problem and a commercial or a public building. Diploma design for graduation is done in the second term. The subject is selected by the student, but must be presented for approval before January 3rd each year; presentation must be in the form of a written report and preliminary plans.
24 hours problems per week, session.
Professors Bland, Collins and visitors

179. HISTORY OF MONUMENTAL BUILDINGS. Points of view concerning significant buildings in the 19th and 20th centuries. A basis for contemporary criticism. Related to Course 160.
2 lectures per week, session *Professor Bland and Mr. Wheeler*

180. PROFESSIONAL PRACTICE. Essential characteristics and more important phases of the architect's work; relationship to the owner; responsibility; business conduct; fees; supervision; arbitration; issuing of certificates; competitions; standard forms of contracts; payment; liens; servitudes; public health; building regulations.

1 lecture per week, session. *Mr. W. A. Johnson*

181. SPECIFICATIONS. Principles of writing architectural specifications; discussion of actual specifications; essays on common building materials; practice in specifying for common trades.

1 lecture per week, session. *Professor Balharrie*

Textbooks: Sleeper, Architectural Specifications (Wiley); National Building Code (Queen's Printer); N.H.A. Specifications.

860. SUMMER ESSAY. (See pages 1448-50).

DEPARTMENT OF CHEMICAL ENGINEERING

Professor	J. B. PHILLIPS, *Chairman*
Associate Professor	
Lecturer	T. W. HOFFMAN
Demonstrators	
Special Lecturer	WILLIAM GAUVIN

THIRD YEAR

240. CHEMICAL ENGINEERING PROBLEMS. Applications of physical and chemical principles to some fundamental problems in Chemical Engineering.

1 lecture and 2 hours problems per week, session *Professor Phillips*

830. SUMMER ESSAY. (See pages 1448-50.)

FOURTH YEAR

260. CHEMICAL TECHNOLOGY. Technology of chemical industries: acids; alkalis; gases; organic synthesis and pressure processes; petroleum products; wood pulp and synthetic fibres; materials of construction; flow-sheets; economic principles.

2 lectures per week, session. *Professor Phillips*

Reference book: Shreve, Chemical Process Industries (McGraw-Hill)

264. ELEMENTARY CHEMICAL ENGINEERING. Stoichiometry, with applications in combustion and some manufacturing processes; thermodynamic

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properties of systems; physical chemistry of solutions; introduction to fluid flow and to heat transfer by conduction.

2 lectures per week, session. *Dr. Gauvin*

Textbook: Arnold, Chemical Engineering Stoichiometry (The Author).

266. INORGANIC CHEMICAL TECHNOLOGY. First term of Course 260.

2 lectures per week, first term. *Professor Phillips*

268. THERMODYNAMICS. The first law, including enthalpy balances, heats of reaction, flow processes; the second law; thermodynamic cycles and charts; elementary chemical reaction equilibria.

2 lectures per week, session. *Dr. Gauvin*

Textbook: Weber, Thermodynamics for Chemical Engineers (Wiley).

270. SUMMER SCHOOL. Lectures and laboratory work in flow of fluids, filtration, unit processes; technical analysis; shop practice. Experimental illustration of thermodynamical principles; report writing.

840 SUMMER ESSAY. (See pages 1448-50.)

FIFTH YEAR

280. CHEMICAL ENGINEERING (A). Study of unit operations based on thermodynamics: heat transfer; evaporation; dimensional analysis; nomographic charts; assigned problems.

3 lectures per week, session. *Dr. Gauvin*

Textbook: Walker, Lewis, McAdams and Gilliland, Principles of Chemical Engineering (McGraw-Hill).

282. CHEMICAL ENGINEERING (B). Study of unit operations based on diffusional processes: absorption; extraction; distillation; drying; humidification; filtration; assigned problems.

3 lectures per week, session. *Professor Phillips*

Textbook: as for Course 280.

284. CHEMICAL ENGINEERING DESIGN. Methods and calculations in the design of chemical process equipment. Economic balance in processes. Instrumentation.

2 lectures per week, second term. *Professor Phillips*

286. CHEMICAL ENGINEERING LABORATORY. Experiments in the topics discussed in Courses 280 and 282, with reports; supervised problem periods in related work.

3 hours laboratory and 3 hours problems per week, session.

Mr. Hoffman and Demonstrators

288. THERMODYNAMICS. Advanced topics in refrigeration and evaporation; physical equilibria and properties of non-ideal systems. Chemical reaction equilibria, equilibrium conversion, and estimation of equilibrium constants from thermal data.

2 lectures per week, session. *Dr. Gauvin*

Reference book: Dodge, Chemical Engineering Thermodynamics (McGraw-Hill).

850. SUMMER ESSAY. (See pages 1448-50.)

POSTGRADUATE COURSES

Graduates in Chemical Engineering may proceed, if their work has been of sufficiently high standard, to the Master's degree in Chemistry or in Chemical Engineering. See Announcement of the Faculty of Graduate Studies and Research.

DEPARTMENT OF CHEMISTRY

Professors	C. A. WINKLER, *Chairman* W. H. HATCHER C. B. PURVES
Associate Professors	J. H. MENNIE R. V. V. NICHOLLS A. S. ROSS A. TAURINS L. YAFFE
Assistant Professors	R. K. HOLCOMB H. I. SCHIFF A. SEHON
Lecturers	J. T. EDWARD M. ONYSZCHUK
Sessional Lecturer	R. F. ROBERTSON
Honorary Lecturer	J. H. ROSS
Research Associates	D. A. I. GORING S. G. MASON W. A. MUELLER A. A. ROBERTSON H. T. K. RUCK T. TIMELL

FIRST YEAR

902 (Arts and Science 11). GENERAL CHEMISTRY. A general survey of Inorganic Chemistry. This includes Atomic and Kinetic-Molecular theory, the theory of Ionization, with elementary examples of ionic equilibrium, rates of chemical reaction, law of mass action, oxidation and reduction,

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the electromotive series of the metals, the Periodic Law and the Electronic theory of Valence. The preparation and properties of the more important elements and their compounds in relation to atomic and molecular structures are emphasized.

2 lectures per week. *Professors Winkler, Nicholls, Yaffe and Holcomb*

1 tutorial per week. *Professor Holcomb and Dr. Onyszchuk*

Textbook: Jones, General Chemistry (Blakiston).

Laboratory: The lectures are supplemented by descriptive and quantitative experiments, including volumetric analysis, illustrative of the important principles and theories.

3 hours per week. *Professor Holcomb and Dr. Onyszchuk*

SECOND YEAR

922. PHYSICAL CHEMISTRY (ELEMENTARY). A survey of physico-chemical theory and experimental methods, with problems to illustrate physico-chemical principles and to provide practice in handling experimental data and dimension units.

2 lectures and 1 hour tutorial per week.

Professors Schiff, Sehon and Ross

Textbook: Glasstone, Elements of Physical Chemistry (Van Nostrand).

THIRD YEAR

942 (Arts and Science 27). INORGANIC QUALITATIVE ANALYSIS (ELEMENTARY). Theory of formation and dissolution of precipitates; complex-ions; amphoteric electrolytes; hydrolysis.

Laboratory: Systematic separation and identification of the common ions.

1 lecture and 3 hours laboratory per week. *Professor Holcomb*

Textbook: Curtman, Semi-micro Qualitative Chemical Analysis (Macmillan).

944 (Arts and Science 23). INORGANIC QUANTITATIVE ANALYSIS (ELEMENTARY). Reactions of electrolytes in solution; ionization constant; solubility product constant; common-ion effect. Theory of gravimetric and volumetric precipitation; theory of indicators and acid-base titrations; oxidation-reduction methods.

Laboratory: Simple gravimetric determinations; typical volumetric procedures including precipitation, neutralization, and oxidation-reduction methods. All samples are solids which must be weighed and brought into solution by the student.

1 lecture and 6 hours laboratory per week. *Professor Mennie*

Textbook: Kolthoff and Sandell, Quantitative Inorganic Analysis (Macmillan).

948 (Arts and Science 22). ORGANIC CHEMISTRY (ELEMENTARY).

(a) A survey of the special characteristics of carbon and its compounds, stressing the principal families of compounds and their reactions and dealing mainly with those involving single functional groups.

2 lectures and 1 tutorial per week. *Professors Hatcher and Nicholls*

Textbook: Hart and Schuetz, A Short Course in Organic Chemistry (Houghton Mifflin).

(b) A commentary on the nomenclature, occurrence, preparation, properties, and uses of the more important classes of carbon compounds, and on the principles of functionality, homology and isomerism. A continuation of course (a) in greater detail, so as to include polyfunctional compounds.

2 lectures and 1 tutorial per week. *Professors Purves and Nicholls*

Textbook: Hart and Schuetz, A Short Course in Organic Chemistry (Houghton Mifflin).

950 (Arts and Science 22 laboratory). ORGANIC CHEMISTRY LABORATORY (ELEMENTARY). Experiments illustrative of Courses 948a and b.

3 hours per week. *Dr. Edward*

Laboratory Text: To be announced.

954 (Arts and Science 73). INORGANIC QUANTITATIVE ANALYSIS (ELEMENTARY) Reactions of electrolytes in solution; ionization constant; solubility product constant; common-ion effect. Theory of gravimetric and volumetric precipitation; theory of indicators and acid-base titrations; oxidation-reduction methods.

Laboratory: Representative gravimetric and volumetric laboratory procedures.

1 lectures and 3 hours laboratory per week. *Professor Mennie*

Textbook: Kolthoff and Sandell, Quantitative Inorganic Analysis (Macmillan).

Course 954 is the same as course 944 except for a reduction in laboratory hours.

FOURTH YEAR

962 (Arts and Science 32). ORGANIC CHEMISTRY (ADVANCED). A course in descriptive organic chemistry at an advanced level. It develops and

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extends the material presented in Courses 948a and b. Special consideration is given to the following topics: polyfunctional compounds, aromatic substances, heterocyclic compounds, terpenes, carbohydrates, fats and peptides.

2 lectures per week. *Professor Nicholls*

Textbook: Wertheim, Textbook of Organic Chemistry, 3rd ed. (McGraw-Hill).

Laboratory: (Arts and Science 32L).

6 hours per week. *Professor Nicholls*

Textbook: Cheronis, Semi-micro and Macro Organic Chemistry (Crowell).

964 (Arts and Science 35). CHEMICAL THERMODYNAMICS. First and second laws, entropy, free energy, fugacity and activity, partial molal quantities.

2 lectures per week *Dr. Robertson*

Textbooks: Klotz, Chemical Thermodynamics (Prentice-Hall); Lewis and Randall, Thermodynamics (McGraw-Hill).

Reference: Paul, Principles of Chemical Thermodynamics (McGraw-Hill).

966 (Arts and Science 40). CHEMISTRY AND TECHNOLOGY OF HIGH POLYMERS. Organic (carbon) and inorganic (silicon) polymers; nature of polymeric molecules; relationship between molecular structure and physical, chemical, and mechanical properties; experimental methods for controlling and determining the structures of polymers; properties of commercially available materials; methods of fabrication.

1 lecture per week *Professor Nicholls*

968 (Arts and Science 34L). PHYSICAL CHEMISTRY LABORATORY (INTERMEDIATE). Simple physico-chemical methods of investigating kinetic and thermo-dynamic properties of gases, liquids and solutions.

3 hours per week *Professor A. S. Ross*

Textbook: Daniels, Matthews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

References: Livingston, Physico Chemical Experiments (Macmillan); Palmer, Experimental Physical Chemistry (Cambridge).

972 (Arts and Science 34). KINETIC THEORY. Kinetic theory of gases; mathematical relations for molecular velocity, collision frequency, viscosity, thermal conductivity, diffusion, etc; imperfect gases.

1 lecture per week *Professor A. S. Ross*

References: Jeans, Introduction to Kinetic Theory of Gases (Cambridge University Press); Glasstone, Textbook of Physical Chemistry, 2nd ed. (Van Nostrand).

FIFTH YEAR

982 (Arts and Science 44). CHEMICAL KINETICS. Rates of homogeneous and heterogeneous reactions; activation energy; theories of reaction mechanisms.

1 lecture per week. *Dr. Sehon*

Textbooks: Laidler, Chemical Kinetics (McGraw-Hill); Glasstone, Text-Book of Physical Chemistry (Van Nostrand).

References: Frost and Pearson, Kinetics and Mechanism (Wiley); Hinshelwood, Kinetics of Chemical Change (Oxford); Trotman-Dickenson, Gas Kinetics (Butterworth).

984. PHYSICAL CHEMISTRY LABORATORY (ADVANCED). Physico-chemical measurements related to the requirements of chemical engineering design and practice.

3 hours per week. *Professor A. S. Ross*

Textbook: Daniels, Matthews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

References: Weissberger, Techniques of Organic Chemistry: Vol. I, Physical Methods; Vol. IV, Distillation; Vol. VIII, Investigation of Rates and Mechanisms of Reactions (Interscience); Reilley and Rae, Physico Chemical Methods (Van Nostrand).

986 (Arts and Science 46). COLLOID CHEMISTRY. Descriptive thermodynamic and kinetic treatment of the properties of surfaces, sols, emulsions, and gels.

1 lecture per week. *Dr. Robertson*

References: Weiser, Colloid Chemistry, 2nd ed. (Wiley); Adam, Physics and Chemistry of Surfaces, 3rd ed. (Clarendon Press); Brunauer, Absorption of Gases and Vapors, Vol. I (Princeton Univ. Press); Alexander and Johnson, Colloid Science (Oxford); Harkins, Physical Chemistry of Surface Films (Reinhold); Jirgensons and Straumanis, Short Textbook of Colloid Chemistry; Gregg, The Surface Chemistry of Solids (Reinhold).

988 (Arts and Science 47). ELECTROCHEMISTRY. Electrolytic conduction and electrolysis; Faraday's laws; specific and equivalent conductance and measurement of conductance; mobility and transport number; theory of strong electrolytes; thermodynamics of cells; electrode potentials; concentration cells; liquid junction potentials; overvoltage and polarization phenomena.

1 lecture per week *Professor Schiff*

Textbook: Glasstone, Introduction to Electrochemistry (Van Nostrand).

Reference: MacInnes, The Principles of Electrochemistry (Reinhold).

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DEPARTMENT OF CIVIL ENGINEERING AND APPLIED MECHANICS

Professors	R. E. JAMIESON, *Chairman* (*retires 1957*) CARLETON CRAIG J. L. DE STEIN
Associate Professors	L. J. ARCAND ANDREJS PAKALNINS V. W. G. WILSON
Assistant Professors	G. W. JOLY J. O. MCCUTCHEON S. A. NEILSON D. A. SELBY
Lecturers	R. J. LINDSAY J. R. WATERSTON R. YONG
Demonstrators	

SECOND YEAR

322. MECHANICS. Elementary dynamics of particles; rectilinear motion; projectiles; the inclined plane and pulleys; impulse, impact, and momentum of streams of particles; energy; statics, including equilibrium of concurrent and non-concurrent co-planar forces; problems of simple beams and frameworks, with stress analysis by the method of sections.

2 lectures per week, session.

Professors McCutcheon, Neilson, Selby, and Mr. Yong

324. SURVEYING. Early practice and origin of instruments; the level—types and limitations; optics; direct and indirect levelling exercises; the compass and its uses; the transit—the vernier, horizontal and vertical angles, types of traverses, stadia; the chain and tape—uses and limitations; units of measurements; latitudes and departures; areas; simple circular curves.

2 lectures per week, second term. *Professor Arcand and Mr. Lindsay*

Textbooks: Breed, Surveying (Wiley); Kissam, Surveying (McGraw-Hill; Davis and Foote, Surveying (McGraw-Hill); Parker and McGuire, Simplified Site Engineering for Architects and Builders (Wiley).

THIRD YEAR

342. MATERIALS OF ENGINEERING. An account of the sources, winning, general properties, trade practices and economics of both non-metallic and

metallic materials and their products used in engineering construction and in the manufacturing industries, with emphasis on those not discussed in more detail in subsequent courses.

1 lecture per week, session. *Professor Pakalnins*

Textbook: University notes.

348. MECHANICS (Analytical). Equilibrium of forces; friction; graphical statics; bending moment and shear; analytical statics; relative velocities; variable rectilinear and curvilinear motion; simple harmonic motion with applications to pendulums and to springs; kinetic energy; liquid pressure; moments of inertia. Methods of the calculus are used freely.

2 lectures and 2 hours problems per week, session.

Professors Craig, Neilson, McCutcheon, and Mr. Waterston

Textbooks: Poorman, Applied Mechanics (McGraw-Hill); Girvin, Applied Mechanics (Int. Textbook Co.).

349. MECHANICS (Graphics). Graphical portion of Course 348.

350. SURVEYING. Adjustments of level and of transit; theory and use of the polar planimeter; latitudes and departures; areas; plotting co-ordinates; partition of land; missing sides; stadia surveying; cross-sections, grids, and slope stakes; circular curves; vertical curves; the spiral; chaining errors and corrections.

2 lectures per week, first term. *Professor Arcand and Mr. Lindsay*

Textbooks: Breed, Surveying (Wiley); Davis and Foote, Surveying McGraw-Hill).

351. SURVEYING PROBLEMS. Earthwork calculations using polar planimeter; problems in surveying.

3 hours per week, first term. *Professor Arcand and Staff*

Textbook: Sloane and Montz, Elements of Topographic Drawing (McGraw-Hill).

352. SUMMER SCHOOL. Training in use of hand level; surveyor's compass; level and transit. Pacing and chaining of polygons; topographic details by offsets and by stadia; profiles; circular curves; calculations of areas; plotting of grid and topographic maps.

4 weeks' summer school in April and May. *Professor Arcand and Staff*

830. SUMMER ESSAY (see pages 1448-50).

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FOURTH YEAR

360. ELEMENTS OF STRUCTURAL DESIGN. Beams; plate girders; columns; roof trusses; riveted and welded connections; working drawings; estimating quantities and costs.

2 lectures and 2 hours problems per week, second term.

Professors Joly and McCutcheon

Textbooks: Williams and Harris, Structural Design in Metals (Ronald); Steel Construction (A.I.S.C.); Standard Specifications for Steel Structures for Buildings (C.S.A.).

362. FOUNDATIONS AND MASONRY. Design of concrete mixtures, sub-surface exploration methods, lateral earth pressure theories, lateral pressures on earth structures, stability of slopes, bearing capacity of soils, design of footings, piles and pile driving, coffer dams and caissons.

1 lecture per week, session; 3 hour problems per week, second term.

Professor de Stein

Textbook: Capper and Cassie, Mechanics of Engineering Soils (McGraw-Hill).

Reference Books: Tschebotarioff, Soil Mechanics, Foundations, and Earth Structures (McGraw-Hill); Terzaghi, Theoretical Soil Mechanics (Wiley); Taylor, Fundamentals of Soil Mechanics (Wiley).

364. HYDRAULICS AND LABORATORY. Properties of fluids; hydrostatics; measurement of flow with orifices, weirs and Venturi meters; Bernoulli's theorem; laminar and turbulent flow; flow in pipes and open channels; divided flow.

2 lectures per week, first term. *Professors Craig and Wilson*

3 hours laboratory per week, first term. *Professor Wilson and Staff*

Textbook: Ellis, Elements of Hydraulic Engineering (Van Nostrand).

Reference Book: Daugherty and Ingersoll, Fluid Mechanics, 5th ed. (McGraw-Hill).

368. MAP PROJECTIONS. Graphical determination of spherical triangles; spherical projections; construction of maps.

1 lecture and 2 hours problems per week, first term. *Professor Arcand*

370. MECHANICS. Translation and rotation of solids, including problems of rolling on plane surfaces; compound pendulums; reciprocating machinery with analysis of internal stresses; angular momentum and impact; introduction to the gyroscope with problems and examples of application.

2 lectures per week, first term. *Professors Craig and Joly*

Textbooks: Girvin, Applied Mechanics (International Textbook Co.) Poorman, Applied Mechanics (McGraw-Hill).

371. RAILWAY AND HIGHWAY ENGINEERING. (a) Surveys; grades; curvature; earthwork; track; mechanical operation; economics of location and operation; location project and estimate. (b) In addition, highway economics; elementary soil mechanics; paving materials and construction; lighting; incidental structures; safety.

2 lectures and 6 hours problems and laboratory, first term; 1 lecture and 3 hours problems, second term. *Professor Pakalnins*

Textbooks: Allen, Railway Curves and Earthwork (McGraw-Hill); Williams, Design of Railway Location (Wiley); Tratman, Railway Track and Trackwork (McGraw-Hill); Bruce, Highway Design and Construction (Int. Textbook Co.); Tschebotarioff, Soil Mechanics, Foundations, and Earth Structures (McGraw-Hill); University notes.

373. STRENGTH OF MATERIALS. Stress, strain, resilience, and elastic properties of materials; bending moment and shear diagrams; simple, fixed, and continuous beams; reinforced concrete beams; torsion and bending in shafts and springs; columns; bending combined with direct stress; elementary consideration of compound stresses; distribution of shear.

2 lectures per week, session.

Professors de Stein, Joly, McCutcheon, and Wilson

3 hours laboratory per week, second term. *Professor Wilson and Staff*

Textbook: Warnock, Strength of Materials (Pitman).

Reference books: Morley, Strength of Materials (Longmans Green); Timoshenko-MacCullough, Elements of Strength of Materials (Van Nostrand); Warnock, Strength of Materials (Pitman); Muhlenbruch, Experimental Mechanics and Properties of Materials (Van Nostrand).

376. SURVEYING AND ASTRONOMY. Surveying for construction; marine and box sextants; the alidade and its use; barometric and trigonometric levelling; hydrographic surveying; mine surveying; elements of geodetic surveying; historical and practical astronomy; solution of the ZPS triangle for azimuth, latitude, longitude, and time.

2 lectures per week, session. *Professor Arcand*

Textbooks: Davis and Foote, Surveying (McGraw-Hill); Hosmer and Robbins, Practical Astronomy (Wiley); Rayner, Advanced Surveying (Van Nostrand); Kissam, Surveying for Civil Engineers (McGraw-Hill).

377. SUMMER SCHOOL. Preliminary railway or highway survey with transit, profile, and topography parties; plane table, hand level, and stadia; spiral curves; cross-sections; simple triangulation networks; reciprocal levelling; soundings; current-meter surveys; introduction to mine surveying; small geological survey with Brunton compass and chain; astronomical observations.

4 weeks' summer school in April and May. *Professor Arcand and Staff*

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840. SUMMER ESSAY (see pages 1448-50).

FIFTH YEAR

380. ADVANCED STRUCTURAL DESIGN. Selection and design of members; riveted and welded connections; timber details and design; loading for bridge and building design; building frames; bridge design; economic factors in design.

2 lectures and 6 hours problems per week, session. *Professor de Stein*

Textbooks: Sutherland and Bowman, Structural Design (Wiley); Williams and Harris, Structural Design in Metals (Ronald).

380A. ADVANCED STRUCTURAL DESIGN. Similar to Course 380, but 3 hours problems in second term only. *Professor de Stein*

381. DYNAMICS AND VIBRATION. Rotating axes; Lagrange equations; kinematics of vibration; complex representation; damping; resonance; coupled systems.

(Given in 1957-58 and alternate years.)

1 lecture per week, first term; 2 lectures per week, second term. *Professor Craig*

Reference books: Den Hartog, Mechanical Vibrations (McGraw-Hill); Timoshenko, Vibration Problems in Engineering (Van Nostrand); Von Karman and Biot, Mathematical Methods in Engineering (McGraw-Hill).

One of courses 381 and 383 is given each year to both Fourth and Fifth year students in the applied mechanics option. The courses are given from the engineering point of view, with special attention to methods of approximation.

382. FOUNDATIONS AND REINFORCED CONCRETE. A continuation of Courses 362 and 390.

2 lectures per week and 3 hours problems per week, second term.

Textbooks: As specified for Courses 362 and 390.

383. FLUID MECHANICS. Dimensional analysis; kinematics of fluid flow; mechanics of resistance; boundary layers; open channel flow; dynamic lift and propulsion.

(Given in 1958-59 and alternate years.)

1 lecture per week, first term; 2 lectures per week, second term. *Professor Craig*

Reference books: Rouse, Fluid Mechanics for Hydraulic Engineers (McGraw-Hill); Hunsaker and Rightmire, Engineering Applications of Fluid Mechanics (McGraw-Hill).

384. GEODESY. Adjustment and reduction of observations for horizontal and vertical control systems; figure of the earth; determination of azimuth, latitude, and longitude; level datum planes; gravimetric surveys; errors of observation; shoran trilateration.

Reference books: Hosmer, Goedesy (Wiley); Sharp, Geodetic Control Surveying (Wiley).

2 lectures per week, second term. *Professor Arcand*

385. GEODETIC LABORATORY. Measurement of magnifying power, of eccentricity of circles, and of small angles with sextant; determination of gravity, of error of run of theodolite microscopes, of constant of steel tapes, and of scale value of level vials; investigation of errors of graduation of steel bars and tapes and of transit circles; testing aneroid barometers.

3 hours per week, second term. *Professor Arcand*

386. HYDRAULIC MACHINES. Hydraulic problems in design and operation of hydro-electric projects; characteristics of impulse, reaction, and propeller turbines; specific speed; unit power; reduction of model tests; flow measurements for tests; centrifugal pumps.

2 lectures per week, second term. *Professor Craig*

Textbooks: Creager and Justin, Hydro-Electric Handbook (Wiley), Hunsaker and Rightmire, Engineering Applications of Fluid Mechanics (McGraw-Hill).

Reference book: Daugherty and Ingersoll, Fluid Mechanics, 5th ed. (McGraw-Hill).

387. MUNICIPAL ENGINEERING. Basic engineering and biological principles of the design and construction of water supply and purification systems, and sewerage and sewage disposal works, with selected problems.

4 lectures per week, and 3 hours problems per week, first term.

Professor Pakalnins

Textbook: Steel, Water Supply and Sewerage (McGraw-Hill).

388. PHOTOGRAMMETRY AND LABORATORY. History and development; definitions, stereoscopy; parallax formulae; topographic mapping; photo interpretation; field control; tilt; radial line plotting; mosaics; oblique photography; mapping instruments.

2 lectures per week, second term; 3 hours laboratory per week, second term. *Mr. Lindsay*

Textbook: Sharp, Practical Photogrammetry (MacMillan); L. G. Trorey, Handbook of Aerial Mapping and Photogrammetry (Macmillan).

Reference Books: Bagley, Aero Photography and Aero Surveying (McGraw-Hill); Gruber, Photogrammetry (Chapman and Hall); Manual of Photogrammetry (American Society of Photogrammetry).

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389. STRENGTH OF MATERIALS. (a) Floors and columns in reinforced concrete; critical study of standard specifications; footings; retaining walls. (b) Bending and deflection of beams loaded and supported in any manner; deflection due to shear; principle of least work applied to beams and to statically indeterminate problems; bending of curved bars and of unsymmetrical sections; elastic strains; relation between elastic constants; thick shells. Part (b) is optional for students in mechanical engineering.

1 lecture and 3 hours problems per week, first term; 2 lectures per week, second term. *Professors Craig, de Stein and Joly*

Textbooks: Morley, Strength of Materials (Longmans Green); Seely and Smith, Advanced Mechanics of Materials (Wiley); Sutherland and Reese, Reinforced Concrete Design (Wiley); Large, Basic Reinforced Concrete Design (Ronald); Standard Specifications for Concrete (C.S.A.).

390. STRENGTH OF MATERIALS. Section (a) of Course 389.

391. STRENGTH OF MATERIALS. Section (b) of Course 389.

392. THEORY OF STRUCTURES. Analysis of statically determinate frames under fixed or moving loads; influence lines; distortion of frames; braced arches of two and of three hinges; hingeless arches of reinforced concrete; moment distribution; continuous girders of constant and of variable moment of inertia; rigid frames; frames with redundant members.

1 lecture and 3 hours problems per week, first term; 2 lectures and 6 hours problems per week, second term. *Professor Craig*

Textbooks: Johnson, Bryan and Turneaure, Modern Framed Structures, Parts I and II (Wiley); Shedd and Vawter, Theory of Simple Structures (McGraw-Hill); Sutherland and Bowman, Structural Theory (Wiley).

393. ENGINEERING ANALYSIS. Applications of methods of statistics, operations research, linear programming, etc., to problems in engineering design, control, and systems analysis.

2 hours per week, session. *Professor Craig*

394. SUMMER SCHOOL. Practical engineering astronomy, with emphasis on the determination of latitude and azimuth; geodetic astronomy including Ball's method; precise levelling; precise triangulation, with related problems and base line measurements. Equipment available includes transits, precise and semi-precise levels, optical theodolites of various types, sextants, radio equipment for time signals, Monroe calculators.

4 weeks' summer school in April and May. *Mr. Lindsay and Staff*

395. URBAN PLANNING. Urban transportation systems and related problems, general principles of planning, design and development of residential subdivisions.

1 lecture per week, session. *Professor Pakalnins*

Textbook: Kostka, Planning Residential Subdivisions (University of Manitoba 1954).

850. SUMMER ESSAY (see pages 1448-50).

SURVEYING SUMMER SCHOOLS

Surveying field work is required of all students entering the Third year, except those taking Chemical Engineering, of students entering the Fourth year in the courses in Civil and in Mining Engineering, and of students entering the Fifth year in Civil Engineering. The work will begin in 1957 on or about April 25th and will continue for four weeks.

Students entering Third and higher years from other universities or from other faculties, who cannot attend the above courses in Field Work must attend Special Summer Schools, details of which are given on page 1447.

COURSES FOR THE DEGREE OF MASTER OF ENGINEERING

For particulars of graduate courses offered in Civil Engineering and qualifications for entering the Graduate Faculty, see the Announcement of the Faculty of Graduate Studies and Research.

The Miron Fellowship for postgraduate research in some field of Applied Science related to the concrete industry, and the John Bonsall Porter Scholarship in any field of research, are open to any student admitted for postgraduate work in the Department of Civil Engineering. For further particulars see the University Scholarships Announcement.

*ELECTIVE COURSES IN FIRST YEAR

DEPARTMENT OF BOTANY

1402 (Arts and Science, Biology 100). THE HIGHER PLANTS AND ANIMALS (Full course).

See Zoology 1402.

*Because of time-table conflicts not all of the courses listed in this section are available to First year students each year. Those available in 1957-58 are listed on page 1422

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DEPARTMENT OF CLASSICS

GREEK

1420 (Arts and Science 1). BEGINNERS' GREEK.

3 hours per week, session. *Professor C. D. Gordon*

Textbook: Greek through Reading, Nairn (Ginn & Co.).

1421 (Arts and Science 2). INTERMEDIATE GREEK. Grammar, readings, and lectures on Greek Literature.

3 hours per week, session. *Mr. G. A. R. Vallillee*

Textbooks: Greek through Reading, Nairn (Ginn & Co.); Homer, Selections.

LATIN

1425 (Arts and Science 1). BEGINNERS' LATIN.

3 hours per week, session. *Members of the Department*

Textbook: Wilding, Latin Course for Schools, Parts I and II (Faber & Faber).

1426 (Arts and Science 2). INTERMEDIATE LATIN.

3 hours per week, session. *Members of the Department*

For those students only who have completed Latin 1.

Textbooks: Wilding, Latin Course for Schools, Parts II and III (Faber & Faber); Roma, ed. Robinson and Hunter (Cambridge Press).

1427 (Arts and Science 12). LATIN.

3 hours per week, session. *Members of the Department*

Textbooks: To be announced.

DEPARTMENT OF ECONOMICS AND POLITICAL SCIENCE

1430 (Arts and Science 100). ECONOMIC HISTORY. Evolution of economic institutions; the ancient empires; economic and social aspects of the decline and fall of the Roman Empire; mediaeval agrarian economy; fairs, towns, and trading companies; mediaeval money; the voyages of discovery; religion and the rise of capitalism; nationalism and mercantilism; the colonial system; the beginnings of modern banking; the great inventions and the factory system; North American industrial development; trade unions and the co-operative movement; legislative protection of the worker; international finance; rise and fall of the gold standard; evolution of the central banking function; recent economic changes.

3 hours per week, session. *Professor F. C. James*

DEPARTMENT OF GEOGRAPHY

1442 (Arts and Science 121). (1) THE ELEMENTS OF PHYSICAL GEOGRAPHY. Scientific study of man's habitat. The course is divided into two main parts:

A. Lands and seas. Study of landscape evolution under different climates; general characteristics and circulation of ocean waters; distribution of plants and animals.

B. The atmosphere. Measurement of physical properties of atmosphere; weather processes; world climates, principal types, causes, and characteristics; climatic control of human activity.

3 hours per week, session. *Professor W. F. Summers*

DEPARTMENT OF GERMAN

1450 (Arts and Science 3). GERMAN LANGUAGE (Beginners' Course).

3 hours per week, session. *Professor Bertha Meyer and Mr. Victor Block*

Textbooks: Curts, Basic German, Revised Edition (Prentice-Hall, 1946); Fiedler and Sandbach, First Science Reader for German Students (Oxford Univ. Press).

1451 (Arts and Science 4). GERMAN SCIENCE READING COURSE (Full course). Half the course will be devoted to teaching the method of translation, the second half to actual translation of texts.

Prerequisite: German 1 or German 3 or Matriculation in German.

2 hours per week, session. *Mr. Victor Block*

Textbook: C. V. Pollard, The Practical Solution to German Translation (University Co-op, Austin, Texas).

DEPARTMENT OF HISTORY

1460 (Arts and Science 1). EUROPEAN CIVILIZATION IN THE MEDIAEVAL AND MODERN PERIODS.

3 hours per week, session. *Professor C. C. Bayley*

FACULTY OF MUSIC

The courses in Music are open to those who have the qualifications for the regular courses of Music given in the Faculty of Music. The first course of Music is for those who have offered Music as a Matriculation subject.

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1480 (Arts and Science 1). FIRST COURSE. HARMONY 101.

3 hours per week, session.

An elementary course in written and keyboard harmony comprising a study of the following harmonic materials and techniques:

Triads and dominant seventh chords in all dispositions and inversions; principles of chord progression; part-writing drills; study of the conventional harmonic formulas and cadences; harmonic analysis; harmonization of melody and bass (unfigured) in Bach chorale style using triads, dominant seventh chords and elementary modulations; improvision of short chorale melodies and of short harmonic progressions.

Texts: McHose, Basic Principles of the Techniques of 18th and 19th Century Composition (Chs. 13-31); McHose, Keyboard and Dictation Manual (Chs. 1-9).

Students will also be required to devote three hours weekly to aural training.

DEPARTMENT OF ROMANCE LANGUAGES

NOTE:—For lists of textbooks used in French and Spanish courses, refer to the Announcement of the Faculty of Arts and Science.

FRENCH

French only is used in lectures, except during composition periods.

Both oral and written examinations are held on each year's work.

The oral examination counts for 50 per cent of the total mark.

1491 (Arts and Science French 11). (Advanced)

General survey of French civilization and literature of the 18th and 19th centures; French composition. Enrolment in French 1491 is restricted to students who have achieved first-class standing in French in their School Certificate or High School Leaving examinations, and who pass a test set by the Department at the beginning of the session.

3 hours per week, session. *Professor Hélène Larivière and Staff*

1493 (Arts and Science French 13). General survey of French civilization. Readings, composition and French grammar review.

3 hours per week, session. *Professor T. Romer and Staff*

SPANISH

1495 (Arts and Science Spanish 11).

Grammar; reading and dictation; oral exercises and composition.

3 hours per week, session. *Professor Robina E. Henry and Staff*

DEPARTMENT OF ZOOLOGY

1402 (Arts and Science, Biology 100). THE HIGHER PLANTS AND ANIMALS (Full course). An introductory course in Biology, covering the higher plants and animals. The course is given in two Sections. Section X considers the plants in the first term and the animals in the second term. Section Y considers the animals in the first term and the plants in the second term.

2 hours lectures and 3 hours laboratory per week, both terms.

Botany: *Professors Roscoe, Wilson and Boll*
Zoology: *Professors Berrill and Stanley*

DEPARTMENT OF ELECTRICAL ENGINEERING

Professors	G. A. WALLACE, *Chairman* (*retires 1957*)
	F. S. HOWES
Associate Professor	W. H. SCHIPPEL
Assistant Professors	G. W. FARNELL
	T. J. F. PAVLASEK
Lecturer	R. P. COMSA
Demonstrators	_____

THIRD YEAR

440. ELECTRICAL ENGINEERING. An introduction to Course 460.

2 lectures and 3 hours problems per week, second term.

Professor Wallace

Textbook: Gray and Wallace, Principles and Practice of Electrical Engineering (McGraw-Hill).

830. SUMMER ESSAY (see pages 1448-50).

FOURTH YEAR

460. ELECTRICAL ENGINEERING. Direct- and alternating-current flow in circuits, with an introduction to circuit analysis; review of the laws of electromagnetism and of electric and magnetic fields; theory and operating characteristics of direct-current machinery; principles of alternating-current machinery.

4 lectures per week, first term, 3 lectures per week, second term.

Professor Wallace

Textbooks: Christie, Electrical Engineering (McGraw-Hill). Gray and Wallace, Principles and Practice of Electrical Engineering (McGraw-Hill).

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462. ELECTRICAL ENGINEERING LABORATORY. Operating characteristics of direct-current and alternating-current generators and motors and control devices; measurement of voltage, current, power, etc., in both direct- and alternating-current circuits; circuit characteristics.

6 hours laboratory and 6 hours problems per week, first term; 6 hours laboratory and 3 hours problems per week, second term.

464. ELECTRICAL ENGINEERING LABORATORY. Similar to Course 462, but 9 hours per week, first term, and 6 hours per week, second term.

465. ELECTRICAL ENGINEERING LABORATORY. A special laboratory course for students in the Mechanical Sciences option course in the Department of Mechanical Engineering and the Metal Sciences option course in the Department of Metallurgical Engineering. Consists of most of the laboratory of course 466 with selected experiments from course 462.

3 hours per week, session.

466. ELECTRON TUBES AND CIRCUITS. Theory and operating characteristics of high-vacuum and gas-filled tubes; applications to rectifiers, amplifiers, and oscillators; resonance phenomena; introduction to transient response.

2 lectures per week both terms, and 3 hours laboratory per week, second term.

467. The lecture portion of course 466.

2 lectures per week, session.

470. ELEMENTS OF ELECTRICAL ENGINEERING. Construction, principles of operation, and characteristic curves of both direct- and alternating-current generators and motors; single-phase, two-phase and three-phase machinery; direct-current and alternating-current transmission and distribution; transformers with star and delta connections; correction of power factor; rectifiers.

2 lectures per week, session. *Professors Farnell and Pavlasek*

Textbook: Gray and Wallace, Principles and Practice of Electrical Engineering (McGraw-Hill).

472. ELECTRICAL ENGINEERING LABORATORY. Operating characteristics of direct-current and of alternating-current generators and motors; transformers; circuits containing resistance, inductance, and capacitance: series and parallel resonance; power-factor correction.

3 hours per week, session.

840. SUMMER ESSAY (see pages 1448-50).

FIFTH YEAR

480. COMMUNICATION ENGINEERING (WIRE). Introduction to contemporary practice in telegraph and telephone communication. Transmission-line equations. Properties of uniform and loaded lines. Systems of carrier telephony. Elements of filter design.

2 lectures per week, first term.

481. INDUSTRIAL ELECTRICAL ENGINEERING. Electrical installations for buildings and plant; selection of electric motors and devices; manual and automatic control; standardization and the Canadian Electrical Code; underground cables and conduits.

2 lectures per week, first term. *Professor Schippel*

Reference book: Standard Handbook (McGraw-Hill).

482. ELECTRICAL DESIGN. Principles of design of direct-current generators and motors and of alternating-current generators, motors, and transformers; preparation of practical designs and determination of characteristics.

1 lecture and 3 hours problems per week, session. *Professor Schippel*

Textbook: Gray, Electrical Machine Design (McGraw-Hill).

483. ELECTRICAL DESIGN. Similar to Course 482, but given for students in the communications option.

1 lecture and 3 hours problems per week, first term. *Professor Schippel*

484. ELECTRICAL ENGINEERING. Theory and operating characteristics of alternating-current machinery; theory and operating characteristics of power transmission lines and systems; method of symmetrical components applied to the determination of unbalanced fault current in power systems.

4 lectures per week, session. *Professor Schippel*

Textbook: Christie, Electrical Engineering (McGraw-Hill).

484C. ELECTRICAL ENGINEERING. Similar to course 484 but reduced in the second term to 2 hours per week. *Professor Schippel*

486. ELECTRICAL ENGINEERING LABORATORY AND PROBLEMS. Alternating-current generators; synchronous motors; induction motors; transformers; compensators; frequency and phase changing apparatus; potential regulators, saturable reactors, electronic rectifiers. timers, phototube control, and voltage regulators.

9 hours per week, first term; 12 hours per week, second term, power option.

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488. ELECTRICAL ENGINEERING LABORATORY. Similar to Course 486 but 6 hours per week, session, and given for students in the communications option.

489. ELECTRICAL MEASUREMENTS AND LABORATORY. Units; absolute measurement of current and resistance; standard cells; direct-current potentiometers; primary standards of mutual and self inductance; methods of constructing bridges and of obtaining multiples and submultiples of primary standards; alternating-current bridges; shielding; detectors; alternating-current potentiometers; absolute measurement of capacitance; measurement of magnetic flux; instrument transformers; meters; photometry.

2 lectures per week, first term; 3 hours laboratory per week, power option first term, communications option second term.

Professor Wallace and Staff

490. ELECTRICAL SERVICES. Production, measurement, and control of light; design of lighting systems; electrical distribution in residential and commercial buildings; Canadian Electrical Code. Given in alternate years.

(*Given 1958-59.*)

2 lectures per week, first term. *Professors Wallace and Schippel*

491. INDUSTRIAL ELECTRONICS. The application of electron tubes to rectification, inversion, timers, relays, stroboscopes, line-voltage and motor-speed control and regulation, resistance welding, induction and electrostatic heating, industrial process control, etc.

2 lectures per week, second term. *Professor Pavlasek*

Textbook: To be announced.

492. POWER CONTROL AND PROTECTION. Electrical power generating plant; distribution by radial feeders and networks; street lighting; circuit breaker operation; service continuity and relay protection; miscellaneous applications of electricity.

3 lectures per week, second term. *Professor Schippel*

Reference Book: Electrical Transmission and Distribution Reference Book (Westinghouse).

493. RADIO DESIGN. Design theory and calculations for class B and class C power amplifiers, phasing and matching networks, receiver circuits and simple directional antenna arrays.

1 hour lecture and 3 hours problems per week, first term. *Professor Howes*

494. RADIO ENGINEERING. Radio communication theory and practice; radio-frequency amplifiers; modulation; demodulation; frequency-conversion; antennas; radiation and wave propagation.

2 lectures per week, session. *Professor Howes*

495. RADIO ENGINEERING LABORATORY. Radio-frequency amplifiers; studies of feed-back and cathode-follower amplifiers; adjustment and testing of power oscillators and radio receivers; measurement of modulation and distortion; study of demodulation; radio-frequency lines and filter networks; measurements on Lecher wires; impedance matching; loop and dipole antenna studies; acoustical measurements; theory and use of audio- and radio-frequency bridges and Q meter; micro-wave measurements.

6 hours per week, session. *Professors Howes and Pavlasek*

496. RADIO-FREQUENCY TRANSMISSION LINES AND WAVE GUIDES. The application of transmission-line theory to open-wire and coaxial radio-frequency lines; use of line sections as tuned-circuit elements and as components of matching networks; measurement of complex impedances at ultra-high frequencies; theory and use of transmission-line charts; introduction to electromagnetic theory and properties of wave guides.

2 lectures per week, second term. _____

497. APPLIED ACOUSTICS. General theory of sound waves; the wave equation; sound in pipes; impedance concept as applied in acoustics; theory and applications of sound filters; horns, exponential and conical; horn-type and cone-type loud speakers; impedance matching and sound distribution in public-address systems; microphones; reciprocity theorem as applied in acoustics; acoustic impedance measurements; reflection, refraction, transmission, and absorption of sound waves; room acoustics.

2 lectures per week, second term. *Professor Howes*

850. SUMMER ESSAY (see pages 1448-50).

POSTGRADUATE COURSES

Graduate courses and research facilities are provided for students working for the degrees of M.Eng. and Ph.D. in Electrical Communication Engineering, and the degree of M.Sc. in Electrical Communications. Details are given in the Calendar of the Faculty of Graduate Studies and Research.

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ENGINEERING PRACTICE

Lecturers in Engineering Practice R. G. K. MORRISON
J. M. WHITE

Lecturer in Oral English E. CLIFFORD KNOWLES

Lecturer in Reports S. A. NEILSON

Lecturer in Engineering Law HON. MR. JUSTICE G. S. CHALLIES

Lecturer in History of Science

A series of related courses designed to acquaint the student with the background of his profession, its relation to others, and its place in society, with some consideration of matters not discussed in the professional courses.

SECOND YEAR

1520. HISTORY OF SCIENCE. The evolution of the fundamental physical sciences and mathematics, and their applications to engineering, from the beginnings to modern times.

1 lecture per week, first term.

Reference books: Taylor, Science Past and Present (Heinemann); Sedgwick, Tyler and Bigelow, A Short History of Science (Macmillan); Forbes, Man the Maker (Schuman); Bell, Development of Mathematics, (McGraw-Hill); Chambers' Encyclopedia; Encyclopedia Britannica.

THIRD YEAR

1540. ENGINEERING REPORTS. Use of English, both oral and written, in engineering practice; mechanics of presentation; graphical representation; reproduction methods; job applications; specifications.

1 lecture per week, session. *Dr. Knowles and Professor Neilson*

Reference Book: French, Notes on Writing for Students in Engineering (McGill).

FOURTH YEAR

1560. ENGINEERING REPORTS. Continuation of Course 1540.

1 lecture per week, session. *Dr. Knowles and Professor Neilson*

1561. ENGINEERING PRACTICE I. The planning of investment in engineering projects and industrial plant by determining the quantitative basis for decisions while recognizing the importance of irreducible factors: supply and demand of different types of capital; interest rates; amortization;

alternate structures; marginal cost and revenue; replacement; valuation; depreciation; income tax; government projects. Sources of statistics: financial statements; costing records; plant life statistics.

2 lectures per week, second term. *Professors Morrison, and White*

Textbooks: To be announced.

FIFTH YEAR

1580. ENGINEERING PRACTICE II. Continuation of Course 1561.

2 lectures per week, first term. *Professor White*

Reference Books: Boulding, Economic Analysis (Harper); Dean, Managerial Economics (Prentice-Hall); Grant, Principles of Engineering Economy (Ronald); Petrie, Taxation of Corporate Income in Canada (Univ. of Toronto Press); Specthrie, Industrial Accounting (Prentice-Hall).

1581. ENGINEERING LAW. Definition of law; different branches of law; distinction between civil and criminal law and between civil and common law; statutes, orders in council, and by-laws; Canadian constitutional law and organization of courts; civil law including marriage, tutorship, minority, and interdiction, types of property, rights of ownership, successions, wills and succession duties, expropriation, servitudes, obligations, responsibility for negligence, Workmen's Compensation Act, privileges, hypothecs, registration, prescription, marriage contracts and rights of women, sale, lease and hire, mandate, engineering and architectural contracts, responsibility of architect and builder; organization of engineering and architectural professions; patents, trademarks, industrial design and copyright; partnership and companies; mining; railways; expert evidence and evidence generally.

2 lectures per week, first term. *Hon. Mr. Justice G. S. Challies*

Reference books: Nord, Legal Problems in Engineering (Wiley); Laidlaw Young, Engineering Law (University of Toronto Press).

DEPARTMENT OF ENGLISH

Professors RALPH S. WALKER, *Chairman*
H. G. FILES
JOYCE HEMLOW

Associate Professor HUGH MACLENNAN

Assistant Professors CONSTANCE BERESFORD-HOWE
LOUIS DUDEK
ARCHIBALD E. MALLOCH

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Lecturers

WILLIAM T. BOOTH
CURTIS D. CECIL
KATHLEEN M. FRICKER
ALEXANDER M. KINGHORN
SLAVA KLIMA
FRANK S. MACSHANE
MARGERY E. SIMPSON
GORDON F. SLEIGH
HUGH SPROULE

1000. ENGLISH LITERATURE (Arts and Science 100).

2 hours lectures and 1 hour tutorial conference per week, session.

Professor Walker and Members of the Department

1001. ELEMENTARY ENGLISH COMPOSITION (Arts and Science 100C).

1 hour tutorial conference per week, session.

Professor Walker and Members of the Department

1002. ELEMENTARY ENGLISH COMPOSITION (Arts and Science 150).

For students whose native tongue is not English and who have particular difficulty in writing correct idiomatic English.

2 hours tutorial conferences per week, session.

Professor Walker and Members of the Department

For more detailed descriptions of the content of the above courses see the Announcement of the Faculty of Arts and Science.

The normal requirement in English for students in First year Engineering is English 1000 plus English 1001. This involves four hours per week of lectures and conferences throughout the session.

At the beginning of the session students will be required to take a test in Composition. Those who achieve a high standard in this test may be exempted from English 1001. Those who, while not thus exempted, attain a high standard in the work of the first term may be exempted from further attendance in 1001 at the beginning of the second term.

Students whose native tongue is not English, and whose proficiency in the use of English is not such, in the opinion of the Department, as to enable them to profit adequately from English 1000 and 1001, will be directed to substitute English 1002 for English 1000 and English 1001.

DEPARTMENT OF GEOLOGICAL SCIENCES

Professors T. H. CLARK, *Chairman*
J. E. GILL
E. H. KRANCK

Associate Professors J. S. STEVENSON
J. E. RIDDELL

Assistant Professors J. A. ELSON
C. W. STEARN

THIRD YEAR

1142 (Arts and Science 121). GENERAL GEOLOGY. The earth and the solar system; minerals and rocks composing the earth: erosive forces (weather, wind, rivers, waves, etc.) modifying its surface, and deformative processes (temperature changes, compression, etc.) affecting its subsurface structure; the origin and historical development of the earth and of living things. The economic aspects of all phases of the subject are treated throughout the course.

2 lectures and 2 hours laboratory per week, session. During October the laboratory work is replaced by field excursions.

Professors Clark and Stearn

Text: Longwell and Flint, Introduction to Physical Geology (Wiley, 1955).

Reference book: Agar, Flint, and Longwell, Geology from Original Sources (Holt, 1929).

1144 (Arts and Science 221). MINERALOGY. Lectures: crystallography; physical properties and chemical composition of minerals; the more important ore-minerals, industrial minerals, rock-forming minerals, uses and sources of supply of economic minerals. Laboratory: study of crystal models and crystals; methods for the determination of minerals by blowpipe analysis and by related chemical tests; application of these plus physical characters in the identification of minerals.

2 lectures and 3 hours laboratory per week, session. *Professor Stevenson*

Text: Dana (Hurlbut) Manual of Mineralogy (Wiley.) Ed. 1952.

FOURTH YEAR

1161. MINERALOGY.

Lectures: crystallography; study of the more important ore minerals. Laboratory: study of crystal models and crystals; determination of ore-minerals by physical characteristics and by blowpipe and chemical tests.

2 lectures and 3 hours laboratory per week, first term.

Professor Stevenson

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1162 (Arts and Science 221). MINERALOGY. Same as Course 1144 except for laboratory.

2 lectures per week, session, and 3 hours laboratory per week, first term.
Professor Stevenson

1164 (Arts and Science 332a). PETROLOGY. The common igneous, sedimentary, and metamorphic rocks; modes of occurrence; identification by field methods.

2 lectures and 3 hours laboratory per week, first term. *Professor Kranck*

Textbook: G. W. Tyrrell, The Principles of Petrology, 1956.

1165 (Arts and Science 231). FIELD GEOLOGY. Surface and underground geological field survey methods. Preparation of geological maps, sections, models and reports from field notes, diagrams, aerial photographs, etc.

Two-week field school in May. *Professor Riddell*

Reference books: Lahee, Field Geology 5th ed. (McGraw-Hill); McKinstry, Mining Geology (Prentice-Hall).

1166 (Arts and Science 232b). STRUCTURAL GEOLOGY. A systematic survey of rock structures, their origins and practical importance.

2 lectures and 3 hours laboratory per week, second term.
Professor Riddell

Textbook: Billings, Structural Geology, 2nd ed. (Prentice-Hall).

1180 (Arts and Science 444). GEOLOGY OF NORTH AMERICA. The first part of the course will deal with the physical development of North America, period by period, and the attendant evolution of life. The second part of the course will review the relationship of the natural resources to the major geological units.
Professors Elson, Riddell and Stearn

Textbooks: Dunbar, Historical Geology (Wiley, 1949); Geology and Economic Minerals of Canada, 3rd. ed. (Geological Survey of Canada, 1947).

FIFTH YEAR

1182 (Arts and Science 441). ORE DEPOSITS. Nature, origin, mode of occurrence and classification of deposits of metallic and non-metallic minerals; typical occurrences; geographical distribution.

2 lectures per week, session, and 3 hours laboratory per week, second term. *Professor Gill*

Textbook: Bateman, Economic Mineral Deposits (Wiley).

DEPARTMENT OF MATHEMATICS

Professors
HERBERT TATE, *Chairman*
CHARLES FOX
EDWARD ROSENTHALL
P. R. WALLACE
HANS ZASSENHAUS

Associate Professors
J. D. JACKSON
HYMAN KAUFMAN
WACLAW KOZAKIEWICZ
JOACHIM LAMBEK
T. F. MORRIS
J. E. L. PECK
R. T. SHARP
C. D. SOLIN

Assistant Professors
M. D. BURROW
P. L. BUTZER
G. D. FINDLAY
SAMUEL MELAMED
T. V. NARAYANA
B. A. RATTRAY
L. P. WOOD

Lecturers
MICHAEL HERSCHORN
D. M. KINGSBURY
KAILASH KUMAR
J. E. LE BEL
NORMAN OLER
R. A. PATTERSON
I. H. SHTERN
DAVID SUSSMAN

FIRST YEAR

1200 (Arts and Science 111). TRIGONOMETRY, ALGEBRA, AND ANALYTICAL GEOMETRY.

Plane Trigonometry. Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformations of sums and products, logarithmic solution of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

Algebra. Variation, progressions, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

Analytic Geometry. The analytic geometry of the straight line and circle.

3 lectures per week, session. *Mr. Patterson and Staff*

Textbook: H. Tate, Elementary Mathematical Analysis (Pitman).

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1202. ENGINEERING PROBLEMS. Problems and exercises in practical computations on course 1200 involving the slide rule, logarithms, approximations, graphs, etc.

2 hours per week, session. *Mr. Patterson and Staff*

SECOND YEAR

1220. ALGEBRA. Complex numbers, remainder theorem, partial fractions, interest, annuities, sinking funds, depreciation, valuation of mining property, bonds.

2 lectures per week, first term. *Staff*

Textbook: T. S. Peterson, College Algebra (Harper).

1222. ANALYTIC GEOMETRY. Conic sections and their simple properties, introduction to three-dimensional analytic geometry, polar co-ordinates, parametric representation with applications to some elementary notions in statistics such as averages, standard deviation, coefficients of variation and correlation, determination of lines of best fit.

2 lectures per week, session. *Staff*

Textbook: Robin Robinson, Analytical Geometry (McGraw-Hill).

1224. CALCULUS. Functional notation; limits; differentiation of elementary functions; maxima and minima; geometric applications; differentials; integration of standard functions; definite integrals; geometrical and physical applications.

3 lectures per week, session. *Staff*

Textbook: T. S. Peterson, Elements of Calculus (Harper).

1226. MENSURATION AND SPHERICAL TRIGONOMETRY. Simple geometrical properties of lines, planes, and spheres; solid angles, dihedral angles and spherical triangles; the mensuration of the simpler rectilinear solids, cylinders, cones, and spheres. The sine and cosine laws, half-angle formulae, Napier's analogies, solution of oblique triangles, applications to astronavigation, Napier's rule of circular parts for right-angled triangles, law of species, solution of right-angled triangles.

2 lectures per week, second term. *Staff*

Textbooks: R. Brink, Spherical Trigonometry (Appleton); Kern and Bland, Solid Mensuration (Wiley).

THIRD YEAR

1240. ADVANCED CALCULUS (Arts and Science 333). Partial differentiation, Jacobians and implicit functions, mean value theorems and Taylor

series, indeterminate forms, line integrals, Green's and Stokes's theorems, definition of analytic functions of a complex variable, poles and residues, evaluation of definite integrals, the Gamma function and related definite integrals, vectors.

3 lectures per week, session. *Professor Melamed*

Text: Franklin, *Methods of Advanced Calculus* (McGraw-Hill).

1242. CALCULUS. Curvature; partial differentiation; double and triple integrals with application to volumes, moments of inertia, etc.; Taylor's theorem; exponential and logarithmic series; hyperbolic functions; vectors.

2 lectures per week, session. *Professor Rosenthall and Staff*

Textbook: T. S. Peterson, Elements of Calculus (Harper).

1246. VECTOR METHODS AND NOMOGRAPHY. Algebra of vectors, scalar and vector product of two vectors, multiple products, differentiation of vectors with applications to geometry and elementary mechanics, nomography.

1 lecture per week, session. *Professor Fox*

Texts: G. Coffin, *Vector Analysis* (Wiley).

FOURTH YEAR

1260. DIFFERENTIAL EQUATIONS. Ordinary differential equations; methods of solution; elementary functions in complex variables; linear differential equations; especially with constant coefficients; vibration and electric circuit problems; setting up equations; solution by series and introduction to partial differential equations.

2 lectures per week, session. *Professor Kaufman and Staff*

Textbook: Kells, Elementary Differential Equations (McGraw-Hill).

1264. THEORY OF FUNCTIONS AND ADVANCED DIFFERENTIAL EQUATIONS. Conformal mapping; properties of analytic functions; residues; Cauchy's theorem; contour integrals; applications to ordinary and partial differential equations.

1 lecture and 1 hour problems, session. *Professor Kaufman*

Textbook: R. V. Churchill, Introduction to Complex Variables and Applications (McGraw-Hill); R. V. Churchill, Fourier Series and Boundary Value Problems (McGraw-Hill).

1268 (Arts and Science 331). STATICS, DYNAMICS OF A PARTICLE, AND RIGID DYNAMICS. (Same as Course 1368.)

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(a) Dynamics of a particle in one and two dimensions; motion of pair of particles; dynamics of rigid bodies; mass systems.

3 lectures per week, first term. *Professor F. R. Terroux (Physics)*

(b) Central orbits and scattering problems. Lagrangian and Hamiltonian equations. Rotations. Motion of rigid bodies, principal axes and moments of inertia. Normal modes of vibration and characteristic frequencies of oscillating systems, with applications to atomic and molecular physics.

3 lectures per week, second term. *Professor Jackson*

Textbooks: (a) Lamb, Statics (C.U.P.); Lamb, Dynamics (C.U.P.); (b) Slater and Frank, Mechanics (McGraw-Hill).

Reference books: Goldstein, Classical Mechanics, (Addison Wesley); Corben and Stehle, Mechanics (Wiley).

FIFTH YEAR

1282 (Arts and Science 446a). FLUID DYNAMICS (Half course). The equations of motion, conservation of energy and circulation, the theory of images, complex potential and conformal transformation methods, especially solutions for vortex arrays and aerofoil theory, Stokes's stream function for three-dimensional solutions, the equations of viscous flow and boundary layer motion.

First term: 3 hours. *Professor Fox*

Textbooks: Milne-Thomson, Hydrodynamics (Macmillan); Ramsey and Besant, Hydro-Mechanics (C.U.P.).

1284 (Arts and Science 448b). ADVANCED DYNAMICS (Half course). General formulation of Lagrangian dynamics, Hamiltonian equations. Least action principle. Canonical transformations. Poisson brackets. Hamilton-Jacobi theory. Introduction to special relativity in classical mechanics.

Second term: 3 hours. *Professor Sharp*

Textbook: Goldstein, Classical Mechanics.

1290 (Arts and Science 441). MATHEMATICAL PHYSICS. (Same as Course 1390.) Vibration problems, eigenfunctions and eigenvalues, sound waves, scattering problems. Fourier transforms and application to problems of heat conduction and diffusion. Introduction to relativity and wave mechanics. Twelve lectures on topics arising in spectroscopy and nuclear physics will be given by Professor Foster.

3 hours per week, session. *Professor Wallace*

Textbooks: Lindsay, Concepts and Methods of Theoretical Physics (Van Nostrand); Joos, Theoretical Physics (Blackie).

DEPARTMENT OF MECHANICAL ENGINEERING

Professors	D. L. MORDELL, *Chairman* WILLIAM BRUCE
Associate Professors	A. R. EDIS J. M. WHITE
Assistant Professors	J. C. CHERNA P. V. COVO S. LEVINE RUDOLF PUTNAERGLIS J. W. STACHIEWICZ J. H. T. WU
Lecturers	ERICH HERBST A. R. MCKAY
Sessional Lecturer	To be appointed
Demonstrators	To be appointed
Shop Instructor	F. G. CORRICK

FIRST YEAR

511. MECHANICAL DRAWING. Use of instruments; lettering; inking technique; applied geometry; dimension practices; multiplane orthographic views; technical sketching.

3 hours per week, session. *Professor Covo*

Textbook: French, Engineering Drawing, 8th ed. (McGraw-Hill)

SECOND YEAR

521. MECHANICAL DRAWING (Continuation of course 511). Detail working drawings; sections; auxiliary views; developments and intersections of surfaces; dimensioning of working drawings; conventional practices; pictorial projections; working sketches; screw-thread representation.

3 hours per week, session. *Professor Covo*

Textbook: French, Engineering Drawing, 8th ed. (McGraw-Hill)

522. DESCRIPTIVE GEOMETRY. Fundamentals of orthographic projection; characteristics of lines and planes; plane figures and solids; auxiliary projections; analytical solutions; dihedral angles; solutions on cones.

1 lecture and 2 hours drafting room per week, session. *Professor Cherna*

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THIRD YEAR

541. MECHANICAL DRAWING. Detail working drawings from assembly layouts. Assembly drawings from sets of details. Assembly drawing technique, bills of materials, sub-assemblies. Tolerances and limit dimensions, welding symbols, etc. Sheet metal formed parts and faired bodies. Structural draughting practices and piping layouts.

3 hours per week, session. *Professor Covo*

Textbook: French, Engineering Drawing, 7th ed. (McGraw-Hill)

542. MECHANICS OF MACHINES. Constrained motion; instant centers; centrodes; analysis and classification of simple mechanisms, including the quadric-crank, the slider-crank, and wheel trains; design of involute gear teeth; belts and flexible couplings; cam design.

1 lecture, 3 hours problems per week, second term. *Professor Cherna*

Reference books: Billings, Applied Kinematics (Van Nostrand); Guillet, Kinematics of Machines (Wiley); Hinkle, Kinematics of Machines (Prentice Hall).

543. MACHINE SHOP I. Lectures on tools, tool grinding, cutting action of tools, and safety precautions. Marking off, layout, straight and taper turning, surface and gang milling, and use of dividing head (plain indexing).

3 hours per week, session. *Mr. Corrick*

830. SUMMER ESSAY (see pages 1448-50).

FOURTH YEAR

561. INDUSTRIAL ENGINEERING. Rise of modern industry; the industrial revolution; mechanization, standardization and specialization in industry; forms of ownership; organization, location and layout of industrial plants; purchasing; stores keeping; inspection; the rise of industrial management; managerial control.

2 lectures and 2 hours problems per week, first term. *Professor White*

563. MACHINE SHOP II. Study of speeds and feeds for metal cutting, compound and differential indexing on milling machine, shaper operations, surface and cylinder grinding, drills and drilling, consideration of inspection methods.

5 hours per week, first term. *Mr. Corrick*

564. MECHANICS OF MACHINES. Mechanics of reciprocating engines—crank-effort diagrams, flywheel calculations, shaking-force diagrams and engine

balancing; functions and dynamics of governors, mechanical and hydraulic; simple valves and valve diagrams; friction and lubrication.

2 lectures and 1 hour problems per week, session. *Professor Levine*

Reference book: Ham and Crane, Mechanics of Machinery (McGraw-Hill).

566. MECHANICAL ENGINEERING. Elementary thermodynamics; properties of steam; fuels and combustion; steam power plants; steam generators, types, design, rating and efficiency; heat reclaiming devices; superheaters; fuel burning equipment; pulverized coal systems; draft; condensers; pumps; reciprocating steam engines; steam turbines; internal combustion engines; gas turbines; fans, blowers and compressors.

2 lectures per week, session. *Professor Levine*

Reference books: Solberg, Cromer and Spalding, Elementary Heat Power (Wiley); Allen and Bursley, Heat Engines (McGraw-Hill); MacNaughton, Elementary Steam Power Engineering (Wiley); Faires, Theory and Practice of Heat Engines (Macmillan).

569. MECHANICAL ENGINEERING LABORATORY. Properties of lubricants; tests of economy and performance of steam engine, boiler, internal combustion engines, air compressor and steam turbine; heat transfer; proximate analysis and calorific value of coal; flue-gas analysis; combustion calculations; fan performance.

3 hours per week, session. *Professor Cherna and Staff*

Reference books: Sweeney, Measurement Techniques in Mechanical Engineering (Wiley); Shoop and Tuve, Mechanical Engineering Practice (McGraw-Hill).

571. APPLIED THERMODYNAMICS I. Basic definitions and concepts; first law of thermodynamics; general energy equations for non-flow and for flow processes; reversibility and reversible processes; pure substances, properties of gases, properties of vapours, second law of thermodynamics; entropy; power cycles, gas and vapour; combustion; steam power plants; internal combustion power plants; gas compressors and expanders; refrigeration.

2 lectures and 1 hour problems per week, session. *Professor Bruce*

Reference books: Ebaugh, Engineering Thermodynamics (Van Nostrand); MacNaughton, Elementary Steam Power Engineering (McGraw-Hill); Solberg, Cromer and Spalding, Elementary Heat Power (Wiley).

572. SUMMER SCHOOL. Elementary machine shop practice; bench work; lathe work; demonstrations of drilling, shaping, and milling operations. *Mr. Corrick*

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573. FLUID DYNAMICS I. Fundamentals; flow of an ideal fluid; stream lines and stream tubes; Bernouilli's equation for incompressible and compressible flow; flow of a real fluid; boundary layer concepts; similarity and dimensional analysis; fluid flow in pipes.

2 lectures per week, first term. *Professor Mordell*

Textbooks: Binder, Fluid Mechanics (Prentice Hall).

575. MECHANICAL DESIGN I. The course covers the application of the theories of Strength of Materials to the design of mechanical details of machinery. Rational methods are developed, and empirical factors are introduced as required. The emphasis in this course is on detail design work and on acquiring good habits in design detailing on the draughting board.

4 hours lectures, 6 hours problems, second term. *Professor Edis*

Reference books: Vallance and Doughtie, Design of Machine Members, 3rd Edition (McGraw-Hill); Spotts, Design of Machine Elements, 2nd Edition (Prentice Hall).

576. ENGINEERING PROBLEMS. Assigned problems will deal with such topics as theory of absolute errors, plant location, factory layout, work simplification, organization, inventory control, and inspection. Written assignments requiring a search of the literature from available books in the library will be required for some topics that do not lend themselves readily to objective problems. This course follows Industrial Engineering 561.

2 hours a week, second term only. *Professor White*

577. MACHINE DESIGN. This course shows the application of the theory of Strength of Materials to the design of machine elements. The principles of rational design are introduced and stresses in elementary machine members investigated. Empirical factors in design are considered as required.

3 lectures per week, second term. *Professor Covo*

Reference books: Vallance & Doughtie, Design of Machine Members (McGraw-Hill); Black, Machine Design (McGraw-Hill); Spotts, Design of Machine Elements (Prentice Hall).

578. MECHANICAL SERVICES IN BUILDINGS. A general discussion course relating to problems encountered in providing mechanical services in buildings. Physiological and environment aspects of heat, ventilation and air conditions are discussed as well as the estimation of heating and cooling loads and the selection and specification of suitable equipment. Sprinkler systems, gas, plumbing and elevators are discussed. The characteristics of typical equipment are outlined and the construction problems produced by installation of this equipment are studied.

Seminars are held to discuss the installation of the mechanical equipment in buildings designed by the students. Field trips are made to

inspect various mechanical installations in different types of buildings.

2 hours lectures per week, session; 3 hours per week seminars or field trips, second term. *Professor Levine*

Reference books: Allen and Walker, Heating and Air Conditioning (McGraw-Hill); Severns and Fellows, Heating, Ventilation and Air Conditioning Fundamentals (Wiley).

579. THEORY AND DESIGN OF MACHINES I. Analysis and classification of simple mechanisms; mechanics and dynamics of reciprocating machinery; balancing; friction and lubrication; analysis of stresses in machine members, under static and dynamic loads; introduction to vibration theory.

2 hours lectures, 3 hours problems, both terms.

Professors Edis and Stachiewicz

840. SUMMER ESSAY (see pages 1448-50)

FIFTH YEAR

581. EXPERIMENTAL MECHANICAL ENGINEERING. Calibration and use of instruments; measurement of pressure, of temperature, and of power; test methods; test techniques and methods of expressing results; graphical representation and errors.

Investigation and tests of steam boiler, steam turbine, internal combustion engines, air compressor, vacuum pump, fans, heat pump, refrigerating machine; measurements of fluid flow and heat transfer.

2 hours lectures per week, first term; 6 hours laboratory per week, session.

Professors Bruce, Mordell, and Staff

Textbook: Sweeney, Measurement Techniques in Mechanical Engineering (Wiley).

Reference books: Diederichs and Andrae, Experimental Engineering (Wiley) Shoop and Tuve, Mechanical Engineering Practice (McGraw-Hill).

584. INDUSTRIAL ADMINISTRATION. Principles of industrial management and organization; problems of control; budgeting. Discussions of each department in a well-rounded organization, bringing out the function of each and its organization and place in the whole, with emphasis on the work of the engineering, industrial relations, and production departments. The problem period is devoted to working case problems in management.

1 lecture and 3 hours problems, second term. *Professor White*

Textbook: Cornell, Organization and Management (Ronald Press).

585. INDUSTRIAL ENGINEERING. Plant design; plant layouts; lighting, heating, and ventilation; material handling; time and motion studies; wage incentive systems; work simplification; product development and research; statistical quality control; classification and symbolization; industrial safety.

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Visits are made to nearby plants and problems of a practical nature are solved.

2 lectures and 3 hours problems per week, session. *Professor White*

586. INDUSTRIAL RELATIONS. Problems of modern industrial conditions; wages and incentives; job evaluation; service rating; training and education; joint relations; collective bargaining; workers' security; recreation; industrial legislation; research; organization; personnel policy.

2 lectures per week, session. *Professor H. D. Woods*

Textbook: Watkins and Dodd, Management of Labor Relations (McGraw-Hill).

References: From current literature.

Reference Books: Diederichs and Andrae, Experimental Mechanical Engineering, Volume I (Wiley); Shoop and Tuve, Mechanical Engineering Practice (Macmillan); Sweeney, Measurement Techniques in Mechanical Engineering (Wiley); Current Test Codes.

593. APPLIED THERMODYNAMICS II. Thermodynamic equations for gases and vapours; gas-vapour mixtures; evaporating, drying and air-conditioning processes; thermodynamics of combustion; modified and improved power plant cycles; power plant equipment; power plant heat balance; factors preventing the realization of theoretical performance in heat engines; refrigeration and heat pump systems.

2 lectures and 3 hours problems per week, session. *Professor Bruce*

Reference books: Hawkins, Thermodynamics (Wiley); Mooney, Mechanical Engineering Thermodynamics (Prentice-Hall); Gaffert, Steam Power Stations (McGraw-Hill); Lichty, Internal Combustion Engines (McGraw-Hill); Raber and Hutchinson, Refrigeration and Air-Conditioning (Wiley).

594. HEAT TRANSFER. Fundamentals of heat transfer; conduction; free convection; forced convection; basic concepts of the flow theory in laminar and turbulent flow; condensation and evaporation; radiation; overall transfer of heat.

2 hours lectures per week, second term. *Professor Mordell*

Reference Books: Brown and Marco, Introduction to Heat Transfer (McGraw-Hill); Eckert, Introduction to the Transfer of Heat and Mass (McGraw-Hill); McAdams, Heat Transmission (McGraw-Hill).

595. MECHANICAL DESIGN II. In continuation of the work of the Fourth year, more complex problems in design are introduced. The structural nature

of many mechanical mechanisms is stressed, and theories of fatigue failure, the evolution of practical safety factors, and the practical aspects of the design and manufacture of mechanical parts are introduced. During the year students are required to prepare a complete preliminary design brief and working drawings for a typical engineering project.

2 hours lectures, 3 hours problems, session. *Professor Edis*

Reference books: As for course 575 and additionally, Timoshenko, Strength of Materials—Parts I and II (Van Nostrand).

596. FLUID DYNAMICS II. Boundary layer theory; the transport of momentum, heat and mass; momentum relations in steady flow; compressible fluid dynamics; waves; resistance and lift of immersed bodies; general theory of turbo-machines; turbines and compressors.

2 hours lectures, 1 hour problems, session. *Professor Mordell*

Textbook: Binder, Fluid Dynamics (Prentice Hall).

Reference book: Hunsaker and Rightmire, Engineering Application of Fluid Mechanics (McGraw-Hill).

597. DYNAMICS OF MACHINES. Solution of problems in dynamics by methods of inertia, momentum and energy. Study of inertia forces and stresses in machines. Vibrations; free, forced, damped and undamped, with one or more degrees of freedom. Electromechanical analogies. Whirling and torsional vibrations of shafts, balancing of rotors and other problems involving the dynamic behaviour of machines.

2 hours lecture, 1 hour problems, session. *Professor Stachiewicz and Staff*

Reference books: Crossley, Dynamics in Machines (Ronald Press); Thomson, Mechanical Vibrations (Prentice Hall); Den Hartog, Mechanical Vibrations (McGraw-Hill).

598. THEORY AND DESIGN OF MACHINES II. Advanced dynamics, kinematics of vibration. Design theory. Students are required to prepare a design brief and drawings for a typical engineering project that will require application of the theoretical studies.

2 hours lectures, first term; 3 hours problems, both terms.
Professors Edis and Stachiewicz

599. ENGINEERING PROBLEMS. Students will study typical engineering problems involving different interrelated aspects of engineering theory, leading to selection and evolution of a design for which drawings will be expected.

12 hours per week, both terms. *Staff*

850. SUMMER ESSAY (see pages 1448-50).

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COURSES FOR THE DEGREE OF MASTER OF ENGINEERING

Graduate courses are offered in Mechanical Engineering. For particulars of these and qualifications for entering the Graduate Faculty, see the Announcement of the Faculty of Graduate Studies and Research.

DEPARTMENT OF METALLURGICAL ENGINEERING

Professor	J. U. MacEwan, *Chairman*
Associate Professor	H. H. Yates
Assistant Professor	————
Sir William Dawson Fellow	D. C. Briggs

THIRD YEAR

643. METALLURGICAL PROBLEMS AND LABORATORY. Materials balances for smelting and refining operations. Problems and practice in fire assaying

1 lecture per week, session, 2 hours laboratory, first term; 3 hours laboratory second term. *Professor MacEwan*

830. SUMMER ESSAY (see pages 1448-50).

FOURTH YEAR

662. METALLURGICAL LABORATORY. Use of the metallographic microscope preparation of specimens for examination, metallography of iron and steel, photographic technique, heat treatment of steel, pyrometry.

3 hours per week, session. *Professors MacEwan and* ————

664. METALLURGICAL PROBLEMS. The gas laws, combustion problems, coke and gas manufacture; problems dealing with the application of thermodynamic principles to metallurgical operations.

2 hours per week, session. *Professor Yates*

666. METALLURGY OF IRON AND STEEL. An introduction to physical metallurgy with particular reference to iron and steel, fabrication of steels, theory and practice of heat-treatment, applications of iron and steel in industry.

1 lecture per week, session.

Textbook: Wulff, Taylor and Shaler, Metallurgy for Engineers (Wiley).

Reference books: Mondolfo and Zmeskal, Engineering Metallurgy (McGraw-Hill); Samans, Engineering Metals and Alloys (Macmillan);

Kehl, The Principles of Metallographic Laboratory Practice (McGraw-Hill); Brick and Phillips, Structure and Properties of Alloys (McGraw-Hill); Williams and Homerberg, Introduction to Metallography (McGraw-Hill); Young, Materials and Processes (Wiley).

668. METALLURGICAL UNIT OPERATIONS. Study of unit operations as exist in metallurgical engineering. The topics include pyrometry, fluid flow, heat transfer, chemical equilibria, refractories, welding; assigned problems.

2 hours lectures and 1 hour problems per week, session.

Textbook: Schuhmann, Metallurgical Engineering Principles (Addison-Wesley).

Reference books: Binder, Fluid Mechanics (Prentice-Hall); Brown and Associates, Unit Operations (Wiley).

670. PHYSICAL METALLURGY. Review of ferrous metallurgy; introduction to non-ferrous alloys; theory of alloys; theory and practice of heat-treating; use of furnaces, pyrometers, and testing equipment.

1 lecture and 2 hours laboratory per week, first term.

Professor Yates

Reference books: As for Course 666.

840. SUMMER ESSAY (see pages 1448-50).

FIFTH YEAR

680. HYDROMETALLURGY. A detailed study of physico-chemical principles as applied to hydrometallurgical and electrometallurgical processes. Chemical kinetics, colloidal systems, electrochemistry and the phase rule are considered, with assignments as required.

3 lectures per week, session. *Professor Yates*

Textbook: Daniels and Alberty, Physical Chemistry (Wiley).

Reference Books: See Course 686.

681. EXTRACTIVE METALLURGY. Application of the principles of physical chemistry to metallurgical processes used in the recovery and refining of metals. Various standard processes will be studies and these studies will be augmented by assignments including problems.

2 hours lectures per week, session. *Professor MacEwan*

Reference books: See Course 686.

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682. METALLURGICAL LABORATORY. Experiments in pyrometry, heat-treatment, metal refining, metallography, metal working, alloy preparation, fluid flow.

6 hours laboratory per week, first term.

3 hours laboratory per week, second term.

Professor MacEwan

683. HYDROMETALLURGY. Chemical kinetics, colloid chemistry, electrochemistry and the phase rule; applications of these principles to hydrometallurgical and electrometallurgical processes.

3 lectures and 1 hour problems per week, session. *Professor Yates*

Textbook: Daniels and Alberty, Physical Chemistry (Wiley).

Reference books: See Course 686.

684. EXTRACTIVE METALLURGY. Application of the principles of physical chemistry to metallurgical processes used in the recovery and refining of metals. Various standard processes will be studied and these studies will be augmented by the solution of problems.

2 hours lectures and 2 hours problems per week, session.

Professor MacEwan

Reference books: See Course 686.

686. GENERAL METALLURGY. Physical metallurgy of non-ferrous metals and alloys; their uses in industry; basic principle of roasting, smelting, refining, and hydrometallurgical processes.

2 lectures per week, session. *Professor MacEwan*

Reference books: The Departmental Library has numerous texts, reference books, and periodicals, which are available to students.

688. METALLURGICAL COLLOQUIUM. Students are required to present detailed papers on selected metallurgical topics. This is followed by a discussion period.

1 hour per week, second term. *Staff*

690. METALLURGICAL DESIGN. Design of simple furnaces; materials balances and heat balances in standard processes.

3 hours problems per week, second term. *Professor MacEwan*

691. METALLURGICAL INSTRUMENTATION. The application of electronic tubes to rectification, inversion tuners, relays, stroboscopes, line-voltage and motor-speed control and regulation, resistance welding, induction and

electrostatic heating, industrial process control etc. Methods of adapting process information (pressure, temperature, fluid flow, etc.) to control intruments.

2 hours lectures and 3 hours laboratory per week, second term.

Professor Yates

693. PHYSICAL METALLURGY. Lectures will be taken concurrently with Course 694. Assigned essays and problems will be at a higher mathematical and theoretical level than in the general course. Topics that will be emphasized in addition to those suggested in Course 694 are elementary atomic theory, the periodic table, analysis of X-ray data, the theory of dislocations, theories of crystal growth, creep and fatigue.

2 hours lectures per week, session.

694. PHYSICAL METALLURGY. The subject matter will include crystallography, X-ray diffraction; metal and alloy structures; plasticde formation, slip theories, cold work, recrystallization; age-hardening, heat-treatment; and assigned problems.

2 hours lectures and 1 hour problems per week, session.

Textbook: Brick and Phillips, Structure and Properties of Alloys (McGraw-Hill).

Reference books: See Course 686.

695. STUDIES IN METALLURGICAL PROCESSES. In this course advanced topics in either physical or process metallurgy will be assigned. The work will consist of literature surveys, analyses and weekly discussions with the staff. Special laboratory work may replace the assignments in part if advisable.

6 hours per week, first term; 3 hours per week, second term. *Staff*

850. SUMMER ESSAY (see pages 1448-50).

COURSES FOR THE DEGREE OF MASTER OF ENGINEERING AND MASTER OF SCIENCE

Graduate Courses are offered in Pyrometallurgy, Hydrometallurgy, and Physical Metallurgy. For particulars of these and qualifications for entering the Graduate Faculty, see the Announcement of the Faculty of Graduate Studies and Research.

RESEARCH FELLOWSHIP IN THE DEPARTMENT OF METALLURGICAL ENGINEERING

There is one endowed research fellowship in the Department. This is awarded to a graduate of the Department who shows particular aptitude for advanced work, and is held in the Faculty of Graduate Studies and Research. Graduates of other universities are admitted to this Faculty, if qualified, but are not eligible for the fellowship mentioned.

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DEPARTMENT OF MINING ENGINEERING

Professor	R. G. K. Morrison, *Chairman*
Associate Professor	J. S. Godard
Assistant Professor	Talat Salman
Douglas Fellow	_____
Harrington Fellow	_____

THIRD YEAR

740. MINING. An introductory course dealing with the historical background of the mining industry.

1 lecture per week, first term *The Staff*

830. SUMMER ESSAY (see pages 1448-50).

FOURTH YEAR

760. MINE MAPPING. Calculation of mine survey notes using logarithms, traverse tables, and a calculating machine; calculating and mapping of a complete mine survey; drawing composite level plans; sections.

3 hours per week, second term. *Professor Salman*

761. MINE SURVEYING. The plane table and its adjustments; the three-point problem; mine surveying; the auxiliary telescope; shaft plumbing; underground traversing; stope surveys; underground curves; borehole surveys; the Brunton compass; astronomical observation.

2 lectures per week, first term. *Professor Salman*

Textbook: Staley, Introduction to Mine Surveying (Stanford Univ. Press).

762. MINING ENGINEERING I

(a) General mining methods: underground mining, metalliferous and coal; placer mining: quarrying; open pit mining.

2 lectures per week first term. *Professor Morrison*

(b) Sampling methods and the estimation of ore reserves; mine valuation and taxation; Canadian and world mineral production.

2 lectures per week second term. *Professor Morrison*

While parts (a) and (b) are required for students in Mining Engineering, either or both parts may be taken by interested students in other departments.

Reference books: Peele, Mining Engineers' Handbook (Wiley); Jones and Hunt, Coal Mining (Pennsylvania State College); Truscott, Mine Economics (Mining Publications Ltd.).

766. SUMMER SCHOOL (Fire Assaying). Procedures used in the fire assay of ores and of processed materials for precious metals, with emphasis on the underlying theory; instruction in practical assaying.

Two weeks' summer school. *Professors Godard and Salman*

Reference books: Bugbee, Textbook of Fire Assaying (Wiley); Shepard and Dietrich, Fire Assaying (McGraw-Hill).

768. MINERAL DRESSING. Preparation of ores for treatment; mechanical methods of concentration; crushing; grinding; sizing; gravity concentration; agitation; leaching, thickening; filtration; beneficiation of coal.

1 lecture and 3 hours laboratory per week, session.

Professors Godard and Salman

Reference book: Richards and Locke, Textbook of Ore Dressing (McGraw-Hill).

770. ORE ANALYSIS. Technical methods of analysis of ores and mill products.

3 hours laboratory per week, session.

Professors Godard and Salman

Reference book: Low, Weinig, and Schoder, Technical Methods for Ore Analysis (Wiley).

840. SUMMER ESSAY (see pages 1448-50)

FIFTH YEAR

782. MINE DESIGN. The problems arising in the valuation and equipping of a mining property for production are critically examined. On the basis of information supplied relating to a mining property, the student prepares a report covering the calculation of ore reserves; the financial implication of various rates of production; the mining layout and method; pumping; ventilation; transport for men, materials, ore, and waste; surface layout; ore treatment; tailings disposal; time schedule of operations leading to production; the staff, organization, ancillary services and facilities required for production.

6 hours problems per week, session. *Professor Morrison*

Reference books: As for course 762 and also Parks, Examination and Valuation of Mineral Property (Addison-Wesley Press Inc.); Lewis, Elements of Mining (Wiley); Young, Elements of Mining (McGraw-Hill).

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784. MINE FINANCE AND COST CONTROL. Company law and the incorporation of mining companies; provision of capital; payroll accounts and workmen's compensation; cost accounts; direct costs; distributable costs; comparative costs and cost control; amortization, depreciation and depletion; taxes on mines; profit and loss statements and balance sheets.

2 lectures per week, second term. *Mr. R. S. Boire*

786. MINING COLLOQUIUM. Students prepare and deliver a lecture on a suitable subject.

1 hour per week, second term. *The staff*

788. MINING ENGINEERING II.

(a) Ventilation; hoisting, haulage and conveying; pumping and drainage; compressed air.

2 lectures per week, first term. *Professor Morrison*

(b) Explosives, rock excavation, deep mining, ground pressure and support, sequence of stoping.

2 lectures per week, second term. *Professor Morrison*

(c) The Engineer and Management.

1 lecture per week, second term. *Professor Morrison*

While parts (a), (b), and (c) are required for students in Mining Engineering, any or all parts may be taken by interested students in other departments.

Reference books: Fan Engineering, 5th edition (Buffalo Forge Company); Staley, Mine Plant Design, 2nd edition (McGraw-Hill).

790. MINING ENGINEERING PROBLEMS. Calculations in combustion, costs, ventilation, hoisting, haulage, mine drainage, and other mine plant problems.

2 hours per week, session. *Professors Morrison and Salman*

794. SUMMER SCHOOL. Normally this school is held for two to three weeks immediately after Summer School 766 at the close of the Fourth year. It consists of an inspection trip to the mines and plants of some important district, and serves to acquaint the student with engineering methods as applied to the mining industry. This is considered a part of the Fifth year curriculum.

797. MINERAL DRESSING. Cyanidation, floatation, and milling calculations; laboratory work will cover screening, settling, agitation, filtration, jigging, tabling, cyanidation, and flotation.

2 lectures per week, and 3 hours laboratory, first term.
Professors Godard and Salman

798. MINERAL DRESSING. Investigation into the treatment of ores; chemical analyses; flow sheets from these investigations.

1 lecture per week and 3 hours laboratory, second term. *Professor Godard*

850. SUMMER ESSAY (see pages 1448-50).

RESEARCH FELLOWSHIPS IN THE DEPARTMENT OF MINING ENGINEERING

There are two endowed research fellowships in the Department. These are awarded to graduates of the Department who show particular aptitude for advanced work, and are held in the Faculty of Graduate Studies and Research. Graduates of other universities are admitted to this Faculty, if qualified, but are not eligible for the fellowships mentioned.

DEPARTMENT OF PHYSICS

Professors	G. A. WOONTON, *Chairman*
	J. S. FOSTER
	J. S. MARSHALL
Associate Professors	R. E. BELL
	K. L. S. GUNN
	W. M. MARTIN
	ANNA I. MCPHERSON
	E. R. POUNDER
	F. R. TERROUX
	H. G. I. WATSON
Assistant Professor	W. F. HITSCHFELD
Lecturers	M. L. DE ANGELIS
	C. R. CROWELL
	T. W. R. EAST
	E. J. STANSBURY
	W. M. TELFORD

FIRST YEAR

1311. MECHANICS AND ELECTRICITY. An introductory course covering the elementary portions of mechanics, magnetism, electricity, and atomic physics. Simple applications of fundamental principles to well known phenomena are explained with the aid of demonstrations, laboratory work, and numerical examples.

3 lectures per week, session.* *Professors Martin and Bell*

*Voluntary tutorials are provided to assist students in 1311.

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Laboratory, 2 hours per week, session. *Professor McPherson*

Textbooks: Marshall and Pounder, Physics (Macmillan); An Elementary College Course in Experimental Physics (Renouf Publishing Co.).

SECOND YEAR

1320 (Arts and Science 22a). HEAT. Temperature, kinetic theory, heat engines, throttling, evaporation, hygrometry, heat transfer, radiation, and expansion.

3 lectures per week, first term. *Professor Marshall and Dr. Stansbury*

Laboratory, 2 hours per week, first term.
Professors Terroux and McPherson

Textbooks: Marshall and Pounder, Physics (Macmillan); Heat, Light, and Sound Laboratory Manual (Renouf).

1322 (Arts and Science 22b). SOUND AND LIGHT. Simple harmonic motion, waves, interference, moving sources, diffraction, vibrating systems, intensity level, audibility, musical scales, and acoustics. Waves and rays, lenses and mirrors, aberrations, the eye, optical apparatus, illumination, interference, polarized light. Wave theory developed in sound is used for light.

3 lectures per week, second term. *Professor Marshall and Dr. Stansbury*

Laboratory, 2 hours per week, second term.
Professors Terroux and McPherson

Textbooks: Same as for Course 1320.

THIRD YEAR

1340 (Arts and Science 23). ELECTRICITY AND MAGNETISM. Fundamental principles and experimental basis of magnetism; electrostatics; current electricity (D.C. and A.C.); electromagnetic induction; electrodynamics; theory of simple circuits; elementary electronics. Special attention is given to demonstrations, applications, theory of measurements, units, instruments, and numerical problems.

2 lectures and 1 hour voluntary tutorial per week, session.
Professor Pounder and Dr. Crowell

Advanced Section (for Engineering Physics students only).
Professor Watson

In the case of students in Engineering Physics, the tutorials are replaced by supplementary lectures on the more advanced parts of this course including, in particular, the properties of electric and magnetic fields. No examination is required on this part of the course.

Textbook: Ward, Introduction to Electrical Engineering (Prentice-Hall).

Reference books: Signal Training Manual, Vol. II, Part I, Electricity and Magnetism (H. M. Stationery Office); Page, Lessons in Electricity (Macmillan); Brown, Electricity and Magnetism (Holt); Starling, Electricity and Magnetism (Longmans Green); Sears, Electricity and Magnetism (Addison-Wesley); Shortley and Williams, Physics Vol. II (Prentice-Hall).

NOTE: Course 1344 is an integral part of Course 1340.

1342 (Arts and Science 34). HEAT AND THERMODYNAMICS. Thermodynamic systems and variables. The zeroth, first and second laws. The thermodynamics of: heat engines; two-phase systems, including a statement of the third law; theremoelectricity; Joule-Thomson effect; thermionic emission; thermal radiation. Kinetic theory of gases, introduction to statistical mechanics.

2 hours per week, session. *Professor Hitschfeld*

Text: Sears, Introduction to Heat, Thermodynamics, Kinetic Theory and Statistical Mechanics (Addison-Wesley).

References: Zemansky, Heat and Thermodynamics (McGraw-Hill); Hoare, Textbook of Thermodynamics (Longmans Green); Jeans, Kinetic Theory of Gases (Cambridge University Press); Worthing and Halliday, Heat (Wiley).

1344 (Arts and Science 23L). PHYSICS LABORATORY. Illustrating main principles of Course 1340. Theory and use of galvanometers, ammeters, voltmeters, bridges, potentiometers, resistances, capacitances, inductances, magnetometers, rectifiers, oscillators, oscillographs; limitations and accuracy of observations; significant figures.

3 hours per week, session.

Professors Pounder and Watson (*Engineering Physics only*)

Textbook: University Laboratory Manual, Electricity and Magnetism

NOTE: Course 1344 is an integral part of Course 1340.

FOURTH YEAR

1360 (Arts and Science 47). APPLIED GEOPHYSICS. Introduction to geophysical methods of prospecting and investigating sub-surface structures; theories, uses, and limitations of various magnetic, electrical, gravitational, and seismic methods; practical operation of instruments; field results are obtained and analysed; field experience, when possible. Laboratory facilities are available.

2 lectures per week, first term. *Professor Watson*

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Textbook: Eve and Keys, Applied Geophysics, 4th ed. (Cambridge Univ. Press); Dobrin, Introduction to Geophysical Prospecting (McGraw-Hill).

Reference book: Heiland, Geophysical Exploration (Prentice-Hall); Jakosky, Exploration Geophysics (Trija Publishing Co.).

1362 (Arts and Science 35a). ELECTRON PHYSICS. Charge and mass of the electron; the electron as a constituent of matter; atomic structure; electrons in metals and insulators; liberation of electrons from matter; thermionic emission; secondary emissions; photoelectric emission; ionization processes; electrical discharges in gases; control of free electrons; electron ballistics; electron optics; wave characteristics of the electron; electron diffraction; applied electronics, cathode-ray oscillograph; X-ray tubes; electron microscope; radio-tubes.

2 lectures per week, first term. *Professor Pounder*

Reference books: Stranathan, The Particles of Modern Physics (Blakiston); Millman and Seely, Electronics (McGraw-Hill); Richtmyer and Kennard, Introduction to Modern Physics (McGraw-Hill).

1364 (Arts and Science 36 and 36L) LIGHT, ADVANCED. Geometrical and physical optics; electromagnetic theory; interference; diffraction; polarization; simple spectrum analysis; determination of fine structure of spectral lines; Zeeman effect; theory and use of optical apparatus.

2 lectures per week, first term; 1 lecture per week, second term, and 3 hours laboratory per week, session. *Professor McPherson*

Reference books: Morgan, Introduction to Geometrical and Physical Optics (McGraw-Hill); Robertson, Physical Optics (Van Nostrand); Wood, Physical Optics (Macmillan); Drude, Optics (Longmans Green); Jenkins and White, Fundamentals of Optics (McGraw-Hill); Hardy and Perrin, The Principles of Optics (McGraw-Hill).

1366 (Part of Arts and Science 32). PROPERTIES OF MATTER. Surface tension; viscosity; diffusion; gravitation.

1 lecture per week, second term. *Professor Gunn*

Students in Engineering Physics are advised to attend these lectures, but are not required to take the final examination.

Reference books: Smith, General Properties of Matter (Arnold); Newman and Searle, General Properties of Matter (Benn); Beers, Introduction to the Theory of Error (Addison-Wesley).

1368 (Arts and Science 31). STATICS, DYNAMICS OF A PARTICLE, AND RIGID DYNAMICS.

(a) Dynamics of a particle in one and two dimensions; motion of a pair of particles; dynamics of rigid bodies; mass systems.

3 lectures per week, first term. *Professor Terroux*

Textbooks: Lamb, Statics (C.U.P.); Lamb, Dynamics (C.U.P.).

Reference books: Synge and Griffith, Principles of Mechanics (McGraw-Hill); Slater and Frank, Mechanics (McGraw-Hill); Lindsay, Physical Mechanics (Van Nostrand).

(b) Central orbits and scattering problems; Lagrangian and Hamiltonian equations; rotations; motion of rigid bodies, principal axes and moments of inertia; normal modes of vibration and characteristic frequencies of oscillating systems, with applications to atomic and molecular physics.

3 lectures per week, second term. *Professor Charles Fox (Mathematics)*

Textbook: Slater and Frank, Mechanics (McGraw-Hill).

Reference books: Goldstein, Classical Mechanics (Addison-Wesley); Corben and Stehle, Mechanics (Wiley).

FIFTH YEAR

1380. ACOUSTICS OF BUILDINGS. Room acoustics, sound insulation, and noise reduction, presented for architects. The second term is devoted to practical application.

1 lecture per week, first term.
2 hours laboratory per week, second term. *Professor Marshall*

Reference book: Knudsen and Harris, Acoustical Designing in Architecture (Wiley).

1382 (Arts and Science 43 and 43L). ATOMIC PHYSICS.

First term: Atoms, molecules and quanta; optical spectroscopy and classification of spectral lines; thermal radiation and the origin of the quantum theory; the nuclear atom and the Bohr theory of the hydrogen spectrum; Bohr-Sommerfeld quantization; further details of atomic spectra; the vector model, Zeeman effect; the periodic table; X-rays.

Second term: The advent of quantum mechanics, the uncertainty principle, the exclusion principle; the Schroedinger equation and some applications. Molecular spectra; microwave spectroscopy. Some current topics in atomic physics.

2 lectures and 3 hours laboratory per week, session.

Professor Martin and Dr. Telford

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Reference books: Peaslee, Elements of Atomic Physics (Prentice-Hall); Richtmeyer and Kennard, Introduction to Modern Physics (McGraw-Hill); Sawyer, Experimental Spectroscopy (Prentice-Hall); Herzberg, Atomic Spectra and Atomic Structure (Dover); Slater, Modern Physics (McGraw-Hill).

1384 (Arts and Science 48 and 48L). ELECTRICAL MEASUREMENTS. Direct-current instruments and measurements; galvanometer theory; instrument calibration; alternating-current circuit theory; "operational" methods; applications; measurements at power, audio, and radio frequencies; measurements with Lecher wires; construction and testing of simple electrical devices; absolute measurements.

1 hour lecture per week, first term;
2 hours lectures per week, second term;
3 hours laboratory per week, session. *Professor Watson*

Textbooks: Stout, Basic Electrical Measurements (Prentice-Hall); Harris, Electrical Measurements (Wiley).

Reference books: Law, Electrical Measurements (McGraw-Hill); Hague, Alternating Current Bridge Methods (Pitman, London); Harnwell, Principles of Electricity and Electromagnetism (McGraw-Hill); Campbell and Childs, Measurement of Inductance, Capacitance, and Frequency (Macmillan).

1388 (Arts and Science 42). ELECTROMAGNETIC THEORY. Field theory; electrostatics; Laplace's equation; dielectrics; magnetic fields of currents; magnetic materials; electromagnetic induction and Maxwell's equations; electromagnetic waves and energy flow; scalar and vector potentials. Application of these fundamental ideas is made to some of the following topics: skin effect; propagation of waves in conducting media; propagation of guided waves; the electromagnetic foundation of the optical laws of reflection and refraction; diffraction; radiation from antennae.

2 lectures per week, first term; 1 lecture per week, second term.
Professor Woonton

Textbook: Slater and Frank, Electromagnetism (McGraw-Hill).

Reference book: Ramo and Whinnery, Fields and Waves in Modern Radio (Wiley).

1390 (Arts and Science 41). MATHEMATICAL PHYSICS. Vibration problems, eigenfunctions and eigenvalues, sound waves, scattering problems; Fourier transforms and application to problems of heat conduction and diffusion; introduction to statistical mechanics and wave mechanics.

Same as Mathematics 1290.

3 lectures per week, session. *Professor P. R. Wallace*

Reference books: Margenau and Murphy, The Mathematics of Physics and Chemistry (McGraw-Hill); Coulson, Waves (Oliver and Boyd); Lindsay, Concepts and Methods of Theoretical Physics (Van Nostrand); Menzel, Mathematical Physics (Prentice-Hall); Joos, Theoretical Physics (Blackie); Sommerfeld, Partial Differential Equations (Academic Press); Born, Atomic Physics (Blackie).

1392 (Arts and Science 44b). RADIOACTIVITY AND NUCLEAR PHYSICS. The phenomena of radioactive disintegration and the laws of transformations of successive products; the nature and properties of the radiations; methods of detection and of measurement; mechanisms of absorption and scattering; neutrons, positrons, and the constitution of nuclei; methods of producing artificial disintegrations and their products; introduction to nuclear physics.

2 lectures and 3 hours laboratory per week, second term.

Professor Terroux

Reference books: Rutherford, Chadwick, and Ellis, Radiations from Radioactive Substances (Cambridge); Hevesy and Paneth, A Manual of Radioactivity (Cambridge); Cork, Radioactivity and Nuclear Physics (Van Nostrand); Lapp and Andrews, Nuclear Radiation Physics (Prentice-Hall); Semat, Introduction to Atomic and Nuclear Physics (Rinehart); Kaplan, Nuclear Physics (Addison-Wesley).

1394. ATOMIC STRUCTURE. A condensed course covering the fields of atomic structure, properties of electrons, nuclei, and related radiations, including radioactivity and an introduction to nuclear physics and elementary quantum theory.

2 lectures per week, second term. *Dr. Crowell*

Textbook: Tolansky, Introduction to Atomic Physics (Longmans Green).

Reference Books: Stranathan, The Particles of Modern Physics (Blakiston); Richtmeyer and Kennard, Introduction to Modern Physics (McGraw-Hill); Hoag and Korff, Electron and Nuclear Physics (Van Nostrand); Pollard and Davidson, Applied Nuclear Physics (Wiley); Lapp and Andrews, Nuclear Radiation Physics (Prentice-Hall).

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REGULATIONS CONCERNING STANDING AND PROMOTION

GENERAL

(1) Students proceeding to a degree are classed as **Regular Undergraduates** or **Conditioned Undergraduates.** *Regular undergraduates* are those who, having passed all entrance requirements, have also at the close of any session passed the examinations in all the courses of their curriculum or who, at the opening of the following session, have removed all conditions by passing supplemental examinations in the courses in which they failed. *Conditioned undergraduates* are those who have failed to remove all their conditions as above.

(2) No student proceeding to a degree is permitted to register in any year if he is conditioned in courses totalling more than 150 marks.

(3) No student is permitted to register in the Second year if he is conditioned in any English Composition, Mathematics, Physics, Chemistry, or Drafting course from First year Engineering.

(4) The content of the First year course in English Literature varies from year to year. Students failing the regular April examination in English Literature of First year Engineering may write supplemental examinations *based on the same material* in September of the same year, or in April or September of the following year. Any student who, after these three supplemental examination opportunities, is still conditioned in English Literature of First year Engineering, must then write supplemental examinations based on the content of the course for the session immediately preceding the date of such examinations.

(5) No student is permitted to register in the Third year if he is conditioned in Calculus 1224 or Mechanics 322.

(6) Conditioned undergraduates who cannot register in an advanced year *on account of having conditions totalling more than 150 marks* may repeat the work of the year in which they were previously registered, or must meet the following requirements before being permitted to proceed:

TO ENTER SECOND YEAR

Remove *all* conditions and in addition pass examinations in Mathematics 1200, Chemistry 902, and Physics 1311.

TO ENTER THIRD YEAR

Remove *all* conditions and in addition pass examinations in Calculus 1224 and Mechanics 322 for all courses except Chemical Engineering, in which course they must pass examinations in Chemistry 922, Calculus 1224, and Mechanics 322.

TO ENTER FOURTH YEAR

Remove *all* conditions and in addition pass examinations as listed:

Architecture	Chemical	Civil, Electrical, Mechanical
Mechanics 348	Calculus 1242	Mechanics 348
	Chemistry 942	Calculus 1242

Metallurgical	Mining
Mechanics 348	Mechanics 348
Chemistry 942	Geology 1142

TO ENTER FIFTH YEAR

Remove *all* conditions and in addition pass examinations as listed:

Architecture	Chemical	Civil	Electrical
Strength of Materials 373	Chem. Tech. 260	Strength of Materials 373	Elect. Eng. 460
	Chem. Eng. 264		
	Thermo. 268		

Mechanical	Metallurgical	Mining
Applied Thermo. I 571	Strength of Materials 373	Strength of Materials 373
Fluid Dynamics I 573	Chemistry 964	
Machine Design I 575		

There is to be no supplemental fee for such examinations in which the student has already obtained pass standing.

The examinations in the courses specified above must be passed within the six months prior to the date of registration.

(6) Unless an exemption has been granted, all students in Engineering and Architecture must have attended and passed all regular summer school courses indicated in their respective curricula before they may be recommended for a degree.

(7) No undergraduate conditioned in any entrance requirements is permitted to register for any Second- or Third-year course, nor is any undergraduate conditioned in any First- or Second- or Third-year subject permitted to register for any Third- or Fourth- or Fifth-year course, respectively.

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(8) *Partial students* are those who are not proceeding to a degree. Such students may be admitted to classes provided that they have obtained written permission of the Chairman of the Committee on Registration, Standing, and Promotion.

(9) *Limited undergraduates* are those taking one or more courses required to qualify for admission with advanced standing.

(10) Partial students are not eligible to take supplemental examinations.

(11) No final year student is allowed a supplemental examination in any subject in the period between the opening of the second term and the date of Convocation.

(12) Continuously registered students who have failed in any subject, must attempt the supplemental examination in that subject at the next regularly scheduled examination period. If this is failed, the pass mark for subsequent attempts is 60%. A student who misses a regularly scheduled supplemental will be regarded as having taken and failed it, and at the next opportunity must pay an additional supplemental fee, and will be required to obtain a minimum mark of 60% to pass.

(13) No student may repeat the work of more than one year. Students who have failed a year and have cleared their records by examinations are considered as having repeated the work of that year.

FIRST YEAR

Students of the First year taking the curriculum for the first time who have pursued their courses of study without serious interference due to personal illness, domestic affliction, or urgent affairs, and who fail in courses for which they are registered (including courses of the previous year in which the student is conditioned) aggregating over 300 possible marks, will not be permitted to register in the Second year for the following session.

Instruction is not provided for students in courses in which they are conditioned.

Such students may, at the discretion of the Faculty be permitted to repeat the year, and if they do so they may apply for exemption in any draughting room or laboratory course in which they have obtained 65% or more. All applications for such exemptions must be made to the Dean's office, and no exemption is considered granted until written approval is received from the Dean's office. In no case will exemption from any final examination be granted to a student who is repeating his year.

Any student repeating the work of the year, who does not obtain an average of 60% in all repeated courses and final examinations of the year, will be permanently debarred from the Faculty.

Any student who fails in the year for the first time, and does not register to repeat the year in the following session, may proceed to the next year in a subsequent session, if in the interim he has cleared his record.

In order to clear his record he must satisfy the following requirements:

1. He must write examinations in all of the courses of the year in which he obtained less than 65%, and must obtain an average of not less than 60% in these examinations.

2. These examinations must all be written either (a) during a single period of supplemental examinations in any September following the session from which the student has been debarred, or (b) during the regular examination periods of a single session, in which case the student may defer the mid-term examinations to the following September, but will not be permitted to defer any spring examinations.

SECOND YEAR

Students of this year taking the curriculum for the first time, who have pursued their courses of study without serious interference due to personal illness, domestic affliction, or urgent affairs, and who fail in more than four courses for which they are registered (including courses of the previous year in which the student is conditioned) in which standing is determined by sessional examinations, or in four such courses aggregating 350 possible marks or over, will not be permitted to register in the Third year for the following session.

Instruction is not provided for students in courses in which they are conditioned.

Such students may, at the discretion of the Faculty, be permitted to repeat the year, and if they do so they may apply for exemption in any draughting-room or laboratory course in which they have obtained 65% or more. All applications for such exemptions must be made to the Dean's office, and no exemption is considered granted until written approval is received from the Dean's office. In no case will exemption from any final examination be granted to a student who is repeating his year.

Any student repeating the work of the year who does not obtain an average of 60% in all repeated courses and final examinations of the year will be permanently debarred from the Faculty.

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Any student who fails in the year for the first time, and does not register to repeat the year in the following session, may proceed to the next year in a subsequent session if in the interim he has cleared his record.

In order to clear his record he must satisfy the following requirements:

1. He must write examinations in all of the courses of the year in which he obtained less than 65%, and must obtain an average of not less than 60% in these examinations.

2. These examinations must all be written either (a) during a single period of supplemental examinations in any September following the session from which the student has been debarred, or (b) during the regular examination periods of a single session, in which case the student may defer the mid-term examination to the following September, but will not be permitted to defer any spring examinations.

THIRD YEAR

All students of the year taking the curriculum for the first time, who have pursued their courses of study without serious interference due to personal illness, domestic affliction, or urgent affairs, and who fail in more than four courses for which they are registered (including courses of the previous year in which the student is conditioned) in which standing is determined by sessional examinations, or in such courses aggregating over 400 possible marks, will not be permitted to register in the next year for the following session.

Instruction is not provided for students in courses in which they are conditioned.

Such students may, at the discretion of the Faculty, be permitted to repeat the year, and if they do so they may apply for exemption in any draughting-room or laboratory course in which they have obtained 65% or better. All applications for such exemptions must be made to the Dean's office and no exemption is considered granted until written approval is received from the Dean's office. In no case will exemption from any final examination be granted to a student who is repeating his year.

Any student who fails the year for the first time and does not register to repeat the year in the following session may register in the next year in a subsequent session if in the interim he has cleared his record.

In order to clear his record he must satisfy the following requirements:

1. He must write examinations in all of the courses of the year in which he obtained less than 65%, and must obtain an average of not less than 60% in these examinations.

2. These examinations must all be written either (a) during a single period of supplemental examinations in any September following the session from which the student has been debarred, or (b) during the regular examination periods of a single session, in which case the student may defer the mid-term examinations to the following September, but will not be permitted to defer any spring examinations.

FOURTH YEAR

The standings of the students of the year will be based on their records in the courses for which they are registered, including courses of the previous year in which they are conditioned.

Instruction is not provided for students in courses in which they are conditioned.

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine (Undergraduate courses)
Faculty of Medicine (Postgraduate courses)
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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McGill University

FACULTY OF MEDICINE

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

David L. Thomson, M.A., Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal*

Lloyd G. Stevenson, B.A., M.D., Ph.D. — *Dean of the Faculty*

D. S. Fleming, B.A., M.D.,C.M., D.P.H. — *Secretary of the Faculty*

William Bentley, C.G.A., F.C.I.S. — *Bursar*

T. H. Matthews, M.A., LL.D. — *Registrar*

G. A. Grimson, B.Com. — *Comptroller*

Richard Pennington, B.A., Lib.Dip. — *University Librarian*

W. W. Francis, A.B., M.D. (Johns Hopkins), M.D.,C.M. — *Osler Librarian*

Special Announcements are available for the School of Physical and Occupational Therapy, and the School for Graduate Nurses.

A complete list of the teaching staff of the University, including the Faculty of Medicine, is printed as a separate Announcement, which may be obtained from the Registrar's Office.

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McGill University

FACULTY OF MEDICINE

ADMINISTRATIVE OFFICERS

Faculty of Medicine

The one hundred and twenty-fifth session of the Faculty will open on September 4th, 1957, for students of all years.

REQUIREMENTS FOR ENTRANCE

1. (a) *Total Academic Credits:*

The minimum requirement for admission to the medical course is the satisfactory completion of three full years of study in a recognized college or Faculty of Arts and Science (or the equivalent thereof). This minimum requirement may be regarded as equivalent to a total of 90 semester hours.

(b) *Scientific Requirements:*

In the scientific branches, certain subjects are specifically required:
Chemistry, two full courses, including General Chemistry and Organic Chemistry, with laboratory work.
Physics, one year with laboratory work.
Biology, or *Zoology*, one year with laboratory work. (Of this, a half year must consist of Zoology.)

(c) *Cultural Requirements:*

These must be selected in such a way as to be in harmony with the requirements for the degree of B.A. or B.Sc. at the college where the courses are taken. These would commonly include credits in English Literature and in Composition, Mathematics, and at least one modern language. It is advisable for each applicant to present evidence of such preparation.

(d) All candidates for admission to the Medical Faculty are required to take the Medical College Admission Test conducted by the Educational Testing Service or furnish a satisfactory explanation of why they are unable to do so.

2. In selecting courses, in addition to the specific requirements listed above, the intending medical student should plan his pre-medical course as a whole, and in accordance with a definite educational objective. Emphasis should be laid on the broad educational value and the intellectual training afforded, rather than on the factual content of such pre-medical curricula; the student is therefore advised to plan his course in such a way as to provide more than elementary training in some definite field of learning which appeals to him; this major field may be selected from the Natural or the Social Sciences or the Humanities. Certain

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subjects which though not essential have been found valuable in medical study, and which may be included as electives if the curriculum in the major field permits, are Psychology, Sociology, and Genetics.

In general, students are advised not to anticipate medical school courses in Physiology, Histology, Bacteriology, and Biochemistry at the expense of a fundamental training as outlined above.

On the other hand, for students who desire a preparation in excess of the minimum requirements, a considerable degree of specialization in the sciences, such as Honours graduation, or a Master's degree, in Physics, Chemistry, Biochemistry, Biology, Physiology, or Bacteriology, may prove to be desirable and advantageous.

The students' attention is called to the memorandum printed in the Announcement of the Faculty of Arts and Science, for the guidance of pre-medical students.

Candidates for admission shall furnish evidence that they have satisfied the matriculation requirements of the Licensing Body in the region where they wish to practise. This provision applies to Canadian candidates only.

EQUIVALENT STANDING

A student of another Medical School who desires to be admitted to the Faculty of Medicine of this University with equivalent standing is required to submit an official Statement of his preliminary education and of the medical course he has followed and the standing he has obtained. This should be accompanied by a calendar of the Medical School in which he has studied, giving a full statement of the courses of study, and by a certificate of moral character and conduct.

The equivalent courses of study in schools accepted by this University shall be determined from time to time. Acceptance of a course of study as equivalent may not include the examination in that subject held by the accepted school, but the student may be required to pass such examinations, individual or comprehensive, as may be required by the Faculty.

APPLICATION FOR ADMISSION

Application for admission to the Faculty of Medicine must be made upon the regular application form which may be obtained from the Secretary of the Faculty.

As the number of students in each class is limited, application should be made early and in any case not later than January 1st. Each application must be accompanied by a non-returnable fee of $5.00 in the form of a cheque or money order payable to McGill University.

A fee of $50.00 is payable by the applicant within ten days of the receipt of notice that he has been accepted for admission. If the applicant registers within the prescribed registration period in September, this fee will be credited on his University fees. If he fails to register, the fee lapses, and will be used by the University to meet the cost of its administration and overhead charges in caring for applicants who do not finally register.

A personal interview with the Secretary of the Faculty, when possible, is advisable.

REGISTRATION

Students in the Faculty of Medicine will register at the Registrar's Office on Friday, August 30th or Tuesday, September 3rd, 1957. Those who register after the latter date will be required to pay a late registration fee of $5.00 if they register during the first week of the session and $10.00 if they register during the second. The fee will not be refunded except for satisfactory reasons and by authorization of the Faculty. No student will be admitted after the fifteenth day of the session except by special permission of the Faculty.

FEES

The University reserves the right to make changes without notice in its published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions described in the General Information Pamphlet.

UNIVERSITY FEES

1. REGULAR STUDENTS

Annual fee (including Students' Society and Medical Students' Journal fees)		$650.00
Students in the Fourth year also pay for meals at the Royal Victoria Montreal Maternity Hospital		$ 5.00
If paid in two instalments:		
First year only —		
First instalment, on registration	325.00	
Instalment fee	2.50	
	327.50	
Less half deposit	25.00	$302.50
Second instalment, January 15th		$302.50
Second and Third years, each instalment		$327.50
Fourth year, each instalment		$330.00

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2. REPEATING STUDENTS

Students repeating a year pay full fees.

3. AD EUNDEM FEE

Students entering any year above the First, pay a special *ad eundem* fee of $10.00

4. DIPLOMA OF TROPICAL MEDICINE AND HYGIENE FEES

The fee for the course leading to this diploma is $100.00 for those already holding the D.P.H. For all others fee is $250.00.

DATES OF PAYMENT

Fees are due and payable at the Chief Accountant's Office between the hours of 9 a.m. and 4 p.m. on the following dates:

Friday, August 30th, Tuesday, September 3rd to Thursday, September 5th, inclusive, or, if desired, fees may be remitted by mail before the above dates. The second instalment of tuition fees is due and payable on January 15th. An additional $2.00 is charged for payment after the specified dates.

Students registering late pay their fees at the time of registration, failing which they become subject to the late payment fee.

Immediately after the prescribed dates for the payment of fees the Chief Accountant will send to the Dean of each Faculty a list of the registered students who have not paid their fees. The Dean will thereupon suspend them from attendance at classes until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

All fees are payable in Canadian currency.

For further information and for a list of special fees see the General Information Pamphlet included in this Announcement.

MICROSCOPES

Each student, on beginning his studies, is required to provide himself with a first-class microscope for laboratory and private study throughout his course. The microscope must be of substantial construction and be provided, as a minimum, with the following accessories: 2/3, 1/6, and 1/12 oil immersion objective, and a substage condenser. Such an instrument will last a lifetime and is an essential part of the equipment of a practitioner in medicine. Suitable microscopes may be secured through local dealers. The University does not rent microscopes to medical students.

BOARD AND RESIDENCE

For details of board and residence and an estimate of expenses, see the General Information Pamphlet included in this Announcement.

HEALTH SERVICE

For details of the Health Service and Medical Examinations see the General Information Pamphlet included in this Announcement.

COURSES FOR THE DEGREE OF M.D.,C.M.

The minimum period of professional training required by the University as a qualification for the independent practice of Medicine shall be five years, including

a. four years of medical study in the University leading to the degree of M.D.,C.M.; and

b. one year of interneship in an approved hospital,

or

one year of further medical study in the Faculty of Medicine of McGill University or at another medical school approved by it.

While the Faculty Administration exercises a general supervision of arrangements for interneships, the Faculty of Medicine assumes no responsibility to provide an interneship for any student.

A certificate that his medical education is completed and that he is eligible to sit for the examination of a licensing board shall not be issued to any graduate until the University is in possession of satisfactory evidence that he has completed the full requirements.

There are three sessions of thirty-six weeks each and one session (final session) of thirty-two weeks, all exclusive of examination periods. The sessions usually begin the first Tuesday after the first Monday in September (Labour Day), and continue until the first week of June in the first three years and to the first week in May in the final year.

The academic session is divided into four terms in the first and fourth session and into three terms in the second and third sessions. The minimal period of study for the degree of M.D.,C.M., is, therefore. four sessions of study comprising one hundred and forty weeks exclusive of examination periods.

The arrangement of the principal subjects of instruction is usually as follows:

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FIRST SESSION

Anatomy (including Histology and Embryology), Physiology, Biochemistry, Psychobiology and Medical Sociology, Introduction to Medicine.

SECOND SESSION

Pharmacology, General Pathology, Bacteriology and Immunology, Parasitology, Laboratory Diagnosis, Medical Jurisprudence and Toxicology, Medicine, Surgery, Paediatrics, Obstetrics, Health and Social Medicine, Psychiatry.

THIRD SESSION

Special Pathology, Health and Social Medicine, Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Psychiatry, Therapeutics, Ophthalmology, Oto-laryngology, Radiology, Anaesthesia.

FOURTH SESSION

Medicine*, Surgery*, Obstetrics and Gynaecology, Psychiatry, Paediatrics, Ophthalmology, Oto-laryngology, Radiology, Neurology and Neuro-Surgery, History of Medicine.

*In these subjects are included the following:

Medicine—Dermatology, Clinical Therapeutics.

Surgery—Orthopaedics, Urological Surgery, Anaesthesia.

EXAMINATIONS

The examinations taken within the Medical Faculty are divided into two groups, namely major examinations and minor examinations. Major examinations are the final examinations in Anatomy (Embryology), Histology, Physiology, Biochemistry, Pharmacology, Bacteriology and Immunology, Pathology, Health and Social Medicine, Paediatrics, Medicine, Surgery, Obstetrics and Gynaecology, Psychiatry.

The examinations in Medicine and Surgery at the conclusion of the Third Session are ranked as major examinations, even though they are not the final examinations in these subjects.

Minor examinations include the final examinations in Parasitology, Neuro-anatomy, Laboratory Diagnosis, Medical Jurisprudence, Therapeutics, Ophthalmology, Oto-laryngology, Radiology, and examinations preliminary to the final major examinations.

A student who fails in any major examination will be required, before he sits a supplemental examination, to present to the Dean's office from the senior professor of the Department concerned a certificate that the student has taken sufficient extra tuition as would indicate that he has reviewed the subject and is a suitable candidate for the supplemental examination.

There is a strict difference between the importance of a major and a minor examination. If a student fails in the supplemental of a major examination, there are definite restrictions as hereinafter set forth, while failure in the supplemental of a minor examination permits the student to carry conditions as are hereinafter laid down.

A student who fails in the supplementals of not more than two minor examinations may proceed with other subjects in the following year, carrying such subjects as conditions, but may not sit any subsequent major examinations until the conditions have been removed, nor may more than two conditions be carried at one time.

All conditions must be removed by the end of the first term (November) in each session when additional supplemental examinations will be held. Failure in any of these will require the student to revert to the previous year and to repeat the courses of the Winter and Spring terms.

A student who fails in the supplementals of three or more minor examinations in any one session must repeat this session or may be asked to retire, as may be decided by the Promotion Committee, but he may appear before the Promotion Committee to plead his case if it be decided that he should retire.

A failure in the supplemental of a major examination will require the student to repeat the course (repeat the year), and no student may repeat such a course more than once. Any student who fails in the supplementals of two major examinations in any one year shall be required to retire without the privilege of further supplementals.

A student is not allowed supplementals in three major examinations in any one session. He will be required to repeat his year or retire as decided by thePromotion Committee, from whose decision there shall be no appeal.

A student is not allowed supplementals in two major and one minor examination in any one session. He will be required to repeat his year or retire as decided by the Promotion Committee, but he may appear before the Promotion Committee to plead his case if it be decided that he should retire.

A student in the final year may take a supplemental examination in one subject only at the end of the following September, but must present a certificate from the senior professor of the Department concerned that

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he has taken at least three months' extra tuition in this subject in one of the teaching hospitals of the McGill Faculty of Medicine. If he should fail in this supplemental examination, he must repeat the year of study and pass all the major examinations at the completion of the session.

A student in the final year who fails in two subjects will not be permitted supplementals but must repeat the year or retire, as decided by the Promotion Committee, from whose decision there shall be no appeal.

A student will not be allowed to repeat a year more than once nor may he repeat a subsequent year if such repetition has been due to failure in examinations, except on special recommendation of the Promotion Committee, acting upon the motion of the representatives on the committee of the Department concerned.

A student who has been permitted to repeat his year shall be required to make a C+ grade, which for this purpose is considered to be 65%, or he will not be permitted to continue his course.

Examinations, tests, reviews, etc., may be held during the session by any Department in its time of instruction, provided that no more than twenty-four (24) hours' notice is given. It is understood that such examinations, tests or reviews are conducted for the benefit of the student in order that he may have experience in the requirements of the sessional examinations, and further, that he and his teachers may know he is progressing in his studies.

There shall be two Promotion Committees. The First Committee shall consist of representatives of the subjects of Anatomy, Biochemistry, Histology, Physiology, Pharmacology, Bacteriology, Parasitology, Pathology, and Endocrinology, appointed by the Dean, and the Dean and the Secretary *ex officio*. This Committee shall pass on all cases of students who fail to satisfy examination requirements in the First and Second years. The second Committee shall consist of representatives of the Departments of Pathology, Bacteriology, Health and Social Medicine, Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, and Psychiatry appointed by the Dean, and the Dean and the Secretary *ex officio*. This Committee shall pass on all cases of students who fail to satisfy examination requirements in the Third and Fourth years.

All results of examinations will be given out by the Dean's office, after they have been passed upon by the Promotion Committee. It is an absolute rule that no examination results shall be communicated by any other channel.

The Faculty reserves the right to require the withdrawal of any student at any time if, in the opinion of his instructors, he is incompetent. There can be no appeal from this decision.

GRADING

At the conclusion of each course, students are graded in five groups as follows:

A = Excellent
B = Good
C = Fair
D = Doubtful
E = Failure

In reporting the grading, the names of those students who attain "A" standing are arranged in order of merit; in all other grades the arrangement is alphabetical.

By regulation of the Faculty of Medicine, a student is not permitted more than one "D" grade in the examinations of a single year. In the presence of other "D" or "E" grades all "D" grades are automatically converted into failures by the Promotion Committees.

The grade assigned to a student is based upon the results of the Final Examination, but the instructor also takes into account the record of the work done throughout the course.

The quality of the English used by a candidate is taken into account in determining his standing in all examinations.

REQUIREMENTS FOR THE DEGREE OF M.D.,C.M.

1. Every candidate for the degree of Doctor of Medicine and Master of Surgery in this University must be at least twenty-one years of age and of good moral character.

2. He must have fulfilled all the requirements for entrance to the Faculty of Medicine and have attended courses of instruction for four full sessions of not less than eight months each in this University or in some other university, college or school of Medicine, approved by this University. (See page 1608.)

3. No one is permitted to become a candidate for the degree who has not attended at least two full sessions at this University.

4. Every candidate for the degree must have passed all of the required examinations in the subjects comprising the Medical course.

5. He must have attended during at least three sessions of nine terms the practice of the Royal Victoria Hospital or the Montreal General Hospital, or of some other hospital (with not fewer than one hundred beds) approved by this University; and must have acted as clinical clerk for six months in Medicine and six months in Surgery and have fully reported upon at least ten medical and ten surgical cases.

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6. He must also have attended during two terms the practice of the Maternity Hospital or other lying-in hospital approved by the University, and have acted as assistant in at least twenty cases.

7. Every candidate must also have administered anaesthetics, under direction, at least six times, and have assisted at not less than six autopsies.

REQUIREMENTS FOR LICENCE

Intending students are reminded that a University degree in Medicine does not in itself confer the right to practise the profession of medicine. In each Province of Canada and in each one of the United States the right of licensing is vested in a Licensing Body which has its special laws and requirements; in many cases a special standard of general education is insisted upon before *beginning* the study of medicine. One of the requirements in several provinces is that the entrance qualifications of the student must be registered with the provincial licensing body for five years before a licence to practise can be obtained.

N.B.—In order that disappointment and loss of time may be avoided, the University requires Canadian students to register with the licensing body of their home province before beginning their medical course.

Full information as to the requirements for registration in the various provinces may be obtained from the Registrars of the Provincial Medical Boards, as follows:

QUEBEC—Dr. J. Paquin, 1896 Dorchester St. West, Montreal 25, P.Q.

ONTARIO—Dr. H. McPhedran, 174 St. George St., Toronto 5, Ont.

NEW BRUNSWICK—Dr. J. M. Barry, 182 Princess St., Saint John, N.B.

NOVA SCOTIA—Dr. H. L. Scammell, 196 Atlantic St., Halifax, N.S.

PRINCE EDWARD ISLAND—Dr. R. G. Lea, 170 Fitzroy St., Charlottetown, P.E.I.

MANITOBA—Dr. M. T. McFarland, 605 Medical Arts Building, Winnipeg, Man.

ALBERTA—Dr. W. Bramley-Moore, 207 Alexandra Block, Edmonton, Alta.

SASKATCHEWAN—Dr. G. N. Peacock, 415 Birks Bldg., Saskatoon, Sask.

BRITISH COLUMBIA—Dr. Lynn Gunn, 1807 West 10th Avenue, Vancouver 9, B.C.

NEWFOUNDLAND—Dr. C. Macpherson, P.O. Box 5121, St. John's, Nfld.

DOMINION REGISTRATION

In order to take the examination of the Medical Council of Canada a candidate must have the licence of a Canadian province, or he must present a certificate from the Registrar of a Provincial Medical Board that he holds qualifications accepted and approved of by the Medical Board of that province.

Full information may be obtained by writing to the Registrar, 77 Metcalfe Street, Ottawa 4, Ontario.

GENERAL COUNCIL OF MEDICAL EDUCATION

The entrance requirements in Medicine of this University are accepted by the General Medical Council of Great Britain. Graduates of this University who desire to register in England are exempted from any examination in preliminary education on production of the McGill Matriculation certificate. Certificates of this University for attendance at lectures, practical work, and clinics are also accepted by the various examining boards in Great Britain.

Detailed information may be obtained from the Registrar, General Council of Medical Education and Registration, 44 Hallam Street, Portland Place, London, W.1, England.

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Courses of Instruction

DEPARTMENT OF ANAESTHESIA

Professor	H. R. Griffith, *Chairman*
Wellcome Research Professor	J. G. Robson
Assistant Professors	W. G. Cullen
	H. T. Davenport
	R. S. Ferguson
	R. G. B. Gilbert
	Alan B. Noble
Lecturers	P. R. Bromage
	Gladys Ellison
	J. J. Kelly
	P. E. O'Shaughnessy
Demonstrators	E. W. Larking
	D. J. L. MacWatt
	R. A. Millar
	A. N. Mungall
	D. J. Power
	C. A. Sheridan

UNDERGRADUATE COURSES

A student in Medicine, before reaching that part of the curriculum which deals with anaesthesia, will have acquired during the earlier years at the university some incomplete, but important, knowledge of anaesthesia while taking the courses in anatomy, physiology, biochemistry, pharmacology, and pathology.

In the final year he attends thirteen "lectures" given by the personnel of the Department of Anaesthesia. At the beginning of each "lecture" a sound-film is shown which is followed by a panel discussion on the topic presented.

The student is given advice on what to read. At the termination of these "lectures" a written examination is held.

In the final year, also, each student is allocated for one week to the Department of Anaesthesia in one of the hospitals, and two more days in another, in these to learn as much as he may in that short time, as he does the bidding of the anaesthetists and attends four well-planned lecture-demonstrations.

DEPARTMENT OF ANATOMY

Professors	C. P. LEBLOND, *Chairman* C. P. MARTIN
Associate Professors	S. M. BANFILL J. LANGMAN
Assistant Professor	Y. CLERMONT
Hon. Lecturer	E. W. WORKMAN
Lecturers	L. HELLER B. E. WALKER
Lecturer to Dental Students	G. A. BRABANT
Lecturer in Dental Histology	G. DOUGLAS ARMSTRONG
Demonstrator, Histology and Embryology	M. BLAIR
Demonstrator, Histology	H. ROOT
Teaching Fellow	W. R. KENT
Research Assistants	C. E. HOOPER H. ISLER H. PUCHTLER H. VANCE

REQUIRED COURSES

1. GROSS ANATOMY

Five hours lectures and fifteen hours laboratory work per week during the Autumn, Winter and Spring terms of the first medical year.

2. NEURO-ANATOMY

Four hours lecture and laboratory per week during the first term of the second year. Conducted with the co-operation of Dr. Francis McNaughton. This course is listed under the Department of Neurology and Neurosurgery as 2A Neuroanatomy.

3. APPLIED ANATOMY

One hour per week lecture during the Autumn, Winter and Spring terms (Designed for graduate students and candidates for the Diploma in Surgery).

Textbooks: Gray, Anatomy (English edition) or Cunningham, Text-Book of Anatomy.

Practical Manuals: Le Gros Clark, Practical Anatomy, 2nd ed.; Buchanan, Manual of Anatomy; Johnston, Synopsis of Regional Anatomy.

Optional Texts: Quain; Pirsal; Spalteholz, Atlas; Fraser, Anatomy of the Human Skeleton; Fraser and Robbins; Larsell; Ramson; E. E. Hewer, A Text-book of Histology; Anson, Atlas of Anatomy.

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INTRODUCTION TO MEDICINE

One hour per week from October. A presentation of selected clinical material, from the standpoint of the basic medical sciences. The sessions are correlated with the lectures given by the Departments of Anatomy, Biochemistry and Physiology, in rotation.

ELECTIVE COURSES

The Department provides, as far as material will permit, facilities for advanced work or revision. The Chairman of the Department should be consulted by anyone wishing to undertake work of this nature.

4. ADVANCED NEURO-ANATOMY

Lecture and laboratory work on two evenings per week from October to December. By arrangement the course is held in the Neurological Institute under the direction of Dr. McNaughton. The class is limited to ten. The course consists of the construction of plasticine models of the brain, based on individual study of the brain and brain stem.

5. PHYSICAL ANTHROPOLOGY

Lectures and practical courses will be arranged for students when required.

MICROSCOPIC ANATOMY

REQUIRED COURSE

6. HISTOLOGY

The study of the histological structure of the body. Two hours lectures and six hours laboratory work per week during the first 28 weeks of the first medical year.

Textbooks: Ham, Histology; Bailey, Text-Book of Histology; or Maximow and Bloom, Text-Book of Histology.

Additional Reading: De Robertis, Nowinski, and Saenz, General Cytology; Cowdry, Text-Book of Histology.

ELECTIVE COURSE

7. EXPERIMENTAL MORPHOLOGY

This course is divided into two parts which may be taken simultaneously or in successive years.

(a) A seminar on theoretical problems of histology and histochemistry. One hour weekly.

(b) A practical course on the planning of biological experiments, operative procedures on laboratory animals, histological techniques, histo-chemical reactions, radioactive elements (detection by radioautographs and Geiger counter), photographic methods, etc. 2 hours lectures and 4 hours laboratory per week.

The practical course is limited to 6 students per year.

EMBRYOLOGY

REQUIRED COURSE

8. THE STUDY OF HUMAN DEVELOPMENTAL ANATOMY

Two hours per week lecture and two hours per week laboratory work during the second half of the first medical year. Topics emphasized are: the cardio-vascular, gastro-intestinal, uro-genital and nervous system; and the fetal membranes. Laboratory work consists of studying serial sections of the 10 mm. pig. In addition, a set of slides and models is placed on demonstration each week.

Texts: Sections on embryology in Gray's Anatomy or Cunningham. Textbook of Anatomy. Also Arey, Developmental Anatomy; Patton Human Embryology; Hamilton, Boyd and Mossman, Human Embryology.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Professor	R. W. REED, *Chairman*
Associate Professors	G. G. KALZ
	J. W. STEVENSON
Assistant Professors	FRITZ BLANK
	C. A. BUTAS
	GRACE GIRVIN
	K. F. GIRARD
	C. D. KELLY
	A. M. MASSON
Lecturers	J. A. DE VRIES
	E. MANKIEWICZ
	O. MORGANTE
	F. H. PRISSICK
	RAISSA SILOV

All lectures and laboratory courses are given in the Department of Bacteriology, Pathological Institute.

21. MEDICAL BACTERIOLOGY AND IMMUNOLOGY

This course deals with the general principles of medical bacteriology and immunology. The lectures are concerned with the structure and physiology of bacteria, theories of infection and immunity and a systematic study of the pathogenic bacteria, viruses and rickettsiae. Laboratory work provides experience in the cultivation, isolation and identification of bacteria and opportunity to observe their physiological and immunological properties.

Lectures and laboratory work during the first two trimesters of the Second year.

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Texts: Zinsser, Testbook of Bacteriology, edited by Smith and Conant (Appleton-Century-Crofts). 10th ed.; Burrows W., Textbook of Microbiology (Saunders), 16th ed.; Jawetz, Review of Medical Microbiology (Lange Medical Publications, Los Altos, California).

References: T. M. Rivers, Viral and Rickettsial Infections of Man (Lippincott), 2nd ed.; R. J. Dubos, Bacterial and Mycotic Infections of Man (Lippincott), 2nd ed.; Rhodes and van Rooyen, Textbook of Virology (Nelson), 2nd ed.; S. Raffel, Immunity (Appleton-Century-Crofts).

42. ADVANCED MICROBIOLOGY

42b. IMMUNOLOGY

44. BACTERIOLOGY READING COURSE AND THESIS

OTHER COURSES

The Department offers facilities for undergraduate and graduate training. See the announcements of the Faculty of Arts and Science and of the Faculty of Graduate Studies and Research.

DEPARTMENT OF BIOCHEMISTRY

Professors	D. L. THOMSON, *Chairman* J. H. QUASTEL
Associate Professors	O. F. DENSTEDT K. A. C. ELLIOTT R. D. H. HEARD
Assistant Professors	M. SAFFRAN T. L. SOURKES
Sessional Lecturers	ESAU HOSEIN MARGARET PURVIS P. G. SCHOLEFIELD

FIRST YEAR

BIOCHEMISTRY 1. Mon., Wed., Fri., at 9 a.m. (beginning in October).

1L. Laboratory: Six hours a week October to February *Professor Thomson*

Textbooks: Harper, Review of Physiological Chemistry (Lange); Fruton and Simmonds, General Biochemistry (Wiley).

This course consists of the courses numbered 31, 32 (Endocrinology) and 33 (Nutrition) listed in the Announcement of the Faculty of Arts and Science, which also lists more advanced courses offered by the Department.

INTRODUCTION TO MEDICINE

One hour per week from October. A presentation of selected clinical material, from the standpoint of the basic medical sciences. The sessions are correlated with the lectures given by the Departments of Anatomy, Biochemistry, and Physiology, in rotation.

DEPARTMENT OF HEALTH AND SOCIAL MEDICINE

Strathcona Professor	R. P. VIVIAN, *Chairman*
Associate Professors	D. S. FLEMING
	C. W. MACMILLAN
Assistant Professors	MARIAN BAIN
	MARGARET E. NIX
Lecturers	E. H. BENSLEY
	H. E. BURKE
	ETHEL COOKE
	W. H. CRUICKSHANK
	J. E. DE BELLE
	A. MACLEOD
	H. G. ROSS
	W. STORRAR
	MILTON G. TOWNSEND
	J. G. TURNER
	FREDERICK WIENER
Demonstrators	A. STEWART ALLEN
	EDITH M. MANKIEWICZ
	H. ALICIA SLEDGE

The Department provides two courses for undergraduates in the Faculty of Medicine—Public Health and Preventive Medicine, and Medical Jurisprudence and Toxicology.

The course in Public Health and Preventive Medicine is begun in the autumn term of the Second year and contains, for each student, 40 lectures of 1 hour each and 11 demonstrations or field trips or practice sessions of 2½ hours each, a total time of 67½ hours.

The lectures deal with Epidemiology as a medical science and with the application of epidemiological principles to the study of disease causation

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and behaviour. Special emphasis is placed upon the influence of the environment upon health. Nutrition is also dealt with as a problem of ecology. Medical Statistics, including Vital Statistics, deals with census and estimated populations, registration, definition and computation of rates, and with statistical methods and techniques most frequently used in medical work.

Field trips, demonstrations and practice sessions pertinent to the lecture material are arranged which include visits to a water plant and a provincial laboratory; a discussion period on vital statistics; and audio-visual demonstrations on milk and other foods. Four sessions are held in health education and 3 practice sessions in medical statistics are provided.

A minor examination is held at the end of the Second year.

The second part of the course in Public Health and Preventive Medicine is given in the Third year. This part contains 12 lectures given to the class as a whole at weekly intervals during the autumn term and 24 morning sessions of 2½ hours each, in each of the six week concentration periods provided in the curriculum. The total time for each student in the Third year is 72 hours.

The lectures deal with the prevention and control of tuberculosis, industrial health services, exotic diseases, the principles of education and medical economics.

The concentration periods are designed to provide an outline of the organization and activities of public health services in Canada and the operation of local or municipal public health programs, together with didactic material on the etiology, epidemiology and control of specific infectious diseases with demonstration and practice in the use of immunizing agents. The concentration periods also contain the presentation of didactic material on health supervision policies for particular groups in the community with demonstration and discussion. One session is held on hospital-interne relationships.

A final examination is held at the end of the Third year.

Text and Reference Books: Mustard, Introduction to Public Health; Leavell and Clark, Preventive Medicine; Maxcy, Rosenau, Preventive Medicine and Hygiene.

MEDICAL JURISPRUDENCE AND TOXICOLOGY

The course in Medical Jurisprudence and Toxicology consists of some 30 lectures, given to the class as a whole, in the spring term of the Second year.

A. MEDICAL JURISPRUDENCE

Fifteen lectures on (a) legal status of physicians (b) obligation of the doctor to the state (c) professional secrecy—privileged communications

(d) responsibility to the patient—implied and expressed contracts (e) physical examinations, surgical operations and consent (f) malpractice—civil, criminal (g) legal procedures—coroner's court, other courts, medical witness (h) medico-legal aspects of death (i) personal identity in its medico-legal bearing (j) blood stains (k) wounds (l) pregnancy (m) abortion (n) infanticide (o) impotency and sterility (p) rape (q) medico-legal aspects of alcoholic intoxication (r) insanity.

B. TOXICOLOGY

(1) *Acute Poisoning.* Eleven lectures on (a) occurrence (b) modes of action of poisons and modifying factors (c) diagnosis and treatment of acute poisoning and (d) medico-legal considerations.

(2) *Industrial Toxicology.* Four lectures on (a) dusts, fumes, smokes, mists, fogs and vapours (b) metal fume fever (c) arsenic, lead and mercury (d) carbon monoxide (e) organic compounds—aliphatic and aromatic hydrocarbons—halogenated, nitro, and amino derivatives (f) organic solvents (g) factors influencing selection of employees (h) early diagnosis of industrial poisoning.

An examination is held at the end of Second year.

Texts and Reference books: i. *General:* Buchanan, Text Book of Forensic Medicine and Toxicology; Glaiser, Medical Jurisprudence and Toxicology; Kerr, Forensic Medicine; Littlejohn, Forensic Medicine; Long, The Physician and the Law; Gonzales, Vance and Helpern, Legal Medicine and Toxicology; McNally, Toxicology; Sydney Smith, Forensic Medicine; Sydney Smith and Glaister, Recent Advances in Forensic Medicine; Taylor, Principles and Practice of Medical Jurisprudence.

ii. *Industrial Toxicology:* Wampler, Principles and Practice of Industrial Medicine; Garfarer, Manual of Industrial Hygiene; Henderson and Haggard, Noxious Gases; Jacobs, Toxicity of Industrial Organic Solvents —Report no. 80, Medical Research Council, Industrial Health Research Board, G.B.; Hunter, Industrial Toxicology.

HISTORY OF MEDICINE

Professor LLOYD G. STEVENSON

REQUIRED COURSES

1. INTRODUCTORY COURSE (First year)

A series of 8 lectures given during the first month of the medical course to provide an historical orientation to the student entering upon the study of medicine.

2. HISTORY OF MEDICINE (Fourth year).

A series of 24 lectures providing a chronological survey of the history of medicine and a consideration of the history of some major diseases. A weekly lecture during Fall and Winter terms.

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DEPARTMENT OF INVESTIGATIVE MEDICINE

Professor J. S. L. Browne, *Chairman*

Lecturers Inge Dyrenfurth
C. J. P. Giroud
N. Kalant

The Department offers courses leading to the degrees of M.Sc. and Ph.D. in the Faculty of Graduate Studies and Research and provides research facilities for these students or for other persons proceeding to graduate degrees, diplomas or for other qualified individuals.

The courses and the direction of research in this department are given in close collaboration with the Department of Experimental Medicine and members of either department give lectures and direct the research of graduate students registered in the other.

Students may work either in the Medical Building or in one of a number of hospitals depending on the type of work done (clinical or laboratory) or upon the individual directing the research. Part of the function of the department is the correlation of clinical investigation being done at various hospitals.

Students holding either the M.D. or B.Sc. degree or its equivalent may enter the department provided that their standing is acceptable. For the list of courses and further details see the Calendar of the Faculty of Graduate Studies and Research.

DEPARTMENT OF MEDICINE

Professor

Ronald V. Christie, *Chairman*

Associate Professors

D. V. Bates
D. G. Cameron
Neil Feeney
C. W. Fullerton
W. H. P. Hill
M. M. Hoffmann
J. G. Howlett
J. F. McIntosh
H. S. Mitchell
J. H. Palmer
Bram Rose

Assistant Professors

L. J. Adams
J. C. Beck
R. C. Bennetts
H. E. Burke
K. R. Mackenzie
J. F. Meakins
C. J. Pattee
H. N. Segall

Assistant Professors—(cont'd)

G. A. Copping
L. G. Johnson
W. R. Kennedy
Louis Lowenstein
F. M. Smith
S. R. Townsend
R. V. Ward

Lecturers

Michael Aronovitch
C. S. Barker
W. Bauld
F. M. Bourne
J. O. W. Brabander
R. A. Cleghorn
H. I. Cramer
P. A. Edwards
A. F. Fowler
B. L. Frank
Alec Gordon
G. W. Halpenny
R. G. M. Harbert
Cecil Harris
Lester McCallum
Eleanor McGarry
R. D. McKenna
W. G. McLellan
C. J. Malloy
Ian Milne
T. L. Quintin
W. S. Rodger
Lorne Shapiro
Murray Stalker
A. T. Thom
P. G. Weil
G. E. Wight

Demonstrators

Eva Arendt
C. M. Ballem
David Barza
R. G. Baxter
T. A. Brown
Lauder Brunton
Lloyd Caswell
Parker Chesney
William Cohen
S. R. Cooper
Basil Cuddihy
J. H. Darragh
S. Eidinger
Allen Gold
T. R. Hale
G. E. Joron
W. A. R. Laing
A. W. Lapin
Wilfred Leith
B. A. Levitan
P. N. MacDermot
A. D. MacDonald
C. C. Macdonald
D. J. MacIntosh
D. G. Mackay
Melvin McQuitty
D. M. Marcus
John Martin
Alexander Miller
R. O. Morgen
Myron Notkin
J. A. P. Pare
R. E. G. Place
Bernard Pollak
J. S. Polson
E. A. S. Reid
R. G. Rose
Jack H. Rubin
C. H. Stacey
R. L. Stanford
Joseph Wener
D. H. Woodhouse
J. C. G. Young

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THERAPEUTICS

Associate Professors
C. W. Fullerton — R. R. Forsey

Lecturers
G. H. Fisk — B. L. Frank

DERMATOLOGY

Associate Professors — L. P. Ereaux, R. R. Forsey

Assistant Professors — G. E. Craig, Frederick Kalz, B. D. Usher

Lecturers — C. J. Fournier, D. S. Mitchell

Demonstrators — M. S. Cohen, Paula Schopflocher, P. P. Telner

EXPERIMENTAL MEDICINE

Associate Professors — E. H Bensley, Eleanor H. Venning

Assistant Professor — A. Sehon

THE CURRICULUM IN THE DEPARTMENT OF MEDICINE

FOREWORD

The object of the following courses is to impart a sound knowledge of the principles of general medicine in the diagnosis and treatment of disease, to afford a knowledge of the technique, and, above all, so to train the student that he will be enabled to cultivate the faculty of critical judgment. The mere instruction, of itself, is regarded as but a part of the course, while the personal contact of students, teachers, and patients throughout the final years is of prime importance.

The close correlation of physiology, anatomy, and biochemistry with clinical medicine is emphasized—not only in the pre-clinical years, but later in hospital and laboratory—thus affording students a modern scientific medical training. The importance of regarding the patient as a person is emphasized throughout.

Unusual facilities are afforded at the Royal Victoria Hospital and at the Montreal General Hospital where there are extensive laboratories for the study of disease in all its phases. Excellent clinical facilities are afforded at both these hospitals, as well as by affiliation with other institutions.

The University lectures and Theatre Clinics are open to students of all years. The final examinations may cover any portion of the realm of internal medicine and its various branches of which the examiners may deem it proper that a graduating student should be cognizant.

REQUIRED COURSES

SECOND YEAR

COURSE II 1—INTEGRATION OF PHYSIOLOGY, BIOCHEMISTRY, AND ANATOMY WITH MEDICINE

Time—Last two terms of Second year: one lecture or clinic a week in the second term—two lectures a week and one amphitheatre clinic in the third term.

Place—Medical Building. Montreal Neurological Institute Theatre.

Subject Material—This course covers in a systematic manner the deviations from the normal of the physiological and biochemical functions. These are correlated so as to explain symptoms and signs which may be found on physical examination as detected by clinical methods dealt with in Course II 2. This course is so interpreted as to give the student a panoramic view of these disturbances with a proper perspective.

COURSE II 2—A PRACTICAL COURSE IN CLINICAL METHODS

Time—Second and third terms of Second year.

Place—Outpatient Departments of the Royal Victoria, Montreal General, and Queen Mary Veterans Hospitals.

Subject—Practical instruction 4 hours a week on Normal and Abnormal Physical Signs and one amphitheatre clinic, the latter at the Montreal General Hospital.

COURSE II 3—LABORATORY DIAGNOSIS

Time—Last term of Second year.

Place—Medical Building.

Subject—Instruction and practice 2 periods a week in microscopy as applied to clinical medicine. *Professor McIntosh and Assistants*

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THIRD YEAR

COURSE III 4—AMPHITHEATRE CLINICS IN GENERAL MEDICINE

Time—Once weekly throughout year.

Place—Alternately at the Royal Victoria and the Montreal General Hospitals.

Subject—Demonstration and discussion of cases illustrating certain disease processes.

COURSE III 5—BEDSIDE CLINICS AND PRACTICAL DEMONSTRATIONS

Time—Twice weekly during the medical term.

Place—The Royal Victoria and the Montreal General Hospitals.

COURSE III 6—CLINICO-PATHOLOGICAL CONFERENCE

Time—Weekly during the medical term.

Place—The Royal Victoria and the Montreal General Hospitals.

COURSE III 7—CASE REPORTING

During the trimester in Medicine students will be assigned patients in the wards. They will be required to write case histories, make a general examination, note progress, and do such laboratory investigations as are within their scope and have access to all other Laboratory and X-Ray findings. Teaching Fellows will be available to assist students in this work.

COURSE III 8—A PRACTICAL COURSE IN DISEASES OF METABOLISM AND ENDOCRINOLOGY

Time—Weekly during the medical term.

Place—The Royal Victoria and the Montreal General Hospitals.

Subject—This course consists of weekly Ward Rounds in the two Hospitals.

COURSE III 9—THERAPEUTICS

A course of 20 lectures on the principles of therapeutics and on the treatment of various diseases for which clinical material is not readily available.

In addition to the above courses General Ward Rounds are held once a week at each Hospital for students reporting in Medicine.

FOURTH YEAR

COURSE IV 10—AMPHITHEATRE CLINICS IN GENERAL MEDICINE

Time—Once a week throughout the year.

Place—Alternately at the Royal Victoria and Montreal General Hospitals.

Subject—Demonstration and discussion of cases illustrating more complicated cases as compared to the Third year.

COURSE IV 11—BEDSIDE CLINICS AND PRACTICAL DEMONSTRATION

Time—Twice weekly during the medical term.

Place—Wards of the Royal Victoria and the Montreal General Hospitals.

COURSE IV 12—CLINICAL PATHOLOGICAL CONFERENCE

Time—Once a week during the medical term.

Place—The Royal Victoria and the Montreal General Hospitals.

COURSE IV 13—CLINICAL THERAPEUTICS—PRACTICAL BEDSIDE INSTRUCTION

Time—Once a week during the medical term.

Place—The Royal Victoria and the Montreal General Hospitals.

COURSE IV 14—A COURSE OF LECTURES IN MEDICINE

Time—One period a week throughout the year.

Place—Medical Building.

Subject—Lectures in General Medicine to give a panorama of the subject.

COURSE IV 15—A COURSE OF 14 LECTURES IN DERMATOLOGY AND SYPHILOLOGY

Place—Medical Building.

COURSE IV 16—DERMATOLOGY AND SYPHILOLOGY—PRACTICAL INSTRUCTION

Time—Twice a week during one term.

Place—The Montreal General and Royal Victorial Hospitals.

COURSE IV 17—THERAPEUTICS

Eight theatre clinics to be given in the Teaching Hospitals during the course of the year. Therapeutic aspects will be correlated with other aspects of disease.

COURSE IV 18—CASE REPORTING

As in Third year during the medical term. Students will be expected to devote much of their time during the medical term observing on the wards or outdoor of the Teaching Hospital to which they are assigned, writing case reports, and following the progress of their cases with care. Teaching Fellows will be available to assist students in this work.

Place—Wards and Outdoor of the Royal Victoria and Montreal General Hospitals.

An effort is made to enable the student in the Fourth year to take an active part in the care of the patient, both in the wards and in the Out-door Clinics.

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TEXT AND REFERENCE BOOKS

The following books have been classified under general headings and are merely suggestions from which the student may choose according to his own needs. The list is not intended to be exclusive; there are other text books which the student may prefer. The list of reference books is given for information.

Clinical and Laboratory Methods and Physical Diagnosis: Brost, Physical Diagnosis; Cabot and Adams, Physical Diagnosis; Gradwohl, Clinical Laboratory Methods and Diagnosis; Hutchison and Hunter, Clinical Methods; Major, Physical Diagnosis; McGill University, Guide to Medical Case Reporting; A Syllabus of Laboratory Examination in Clinical Diagnosis, edited by Thomas H. Ham (Harvard Press); Todd and Sanford, Clinical Diagnosis by Laboratory Methods; Leopold, Principles and Methods of Physical Diagnosis; Walker, Physical Diagnosis.

Physio-Pathology: Best and Taylor, The Physiological Basis of Medical Practice; Bodansky and Bodansky, Biochemistry of Disease; Canterow and Trumper, Clinical Biochemistry, 4th ed.; Gray, Clinical Chemical Pathology; McLeod, Physiology in Modern Medicine; Peters and Van Slyke, Quantitative Clinical Chemistry, Vol. I, Interpretations; Sodeman, Pathologic Physiology; Wright, Applied Physiology.

General Medicine: Cecil, Text Book of Medicine; Christian, Principles and Practice of Medicine; Conybeare, Text Book of Medicine; Harrison, Principles of Internal Medicine; Meakins, Practice of Medicine; Tidy, General Medical Text Book; Yater, Fundamentals of Internal Medicine.

Differential Diagnosis: Savill, System of Clinical Medicine; Yater, Symptoms and Diagnosis

Dermatology and Syphilology: McKenna, Text Book of Dermatology; Tobias, Advances in Dermatology; Walker and Percival, Introduction to Dermatology.

Miscellaneous Reference Books: Duncan, Diseases of Metabolism; Cheney, Medical Management of Gastro-Intestinal Disorders; Joslin, Diabetic Manual; McLester, Nutrition and Diet in Health and Disease; Moore, Syphilology; Sutton and Sutton, Disorders of the Skin; Ormsby and Montgomery, Diseases of the Skin; Cooke, Allergy, Theory and Practice; White, Heart Disease; Dressler and Roesler, An Atlas of Electrocardiography; Friedberg, Diseases of the Heart; Taussig, Congenital Malformation of the Heart; Wintrobe, Clinical Hematology; Whitby and Britton, Disorders of the Blood; Rubin, Diseases of the Chest; Soskin, Progress in Clinical Endocrinology.

DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

Chairman	WILDER PENFIELD
Professor of Neurology and Neurosurgery	THEODORE RASMUSSEN
Professor of Neurosurgery	WILLIAM CONE
Professor of Experimental Neurology	HERBERT JASPER
Associate Professor of Neurology	FRANCIS MCNAUGHTON
Associate Professor of Experimental Neurology	K. A. C. ELLIOTT
Associate Professor of Neurological Radiology	DONALD MCRAE
Assistant Professor of Neurology	J. B. R. COSGROVE D. L. LLOYD SMITH PRESTON ROBB W. F. T. TATLOW A. W. YOUNG
Assistant Professors of Neurosurgery	HAROLD ELLIOTT ARTHUR ELVIDGE
Lecturers in Neurology	BERNARD GRAHAM D. E. HOWELL REUBEN RABINOVITCH
Lecturers in Neurosurgery	GILLES BERTRAND LAMAR ROBERTS
Lecturer in Electroencephalography	PIERRE GLOOR
Lecturer in Experimental Neurology	HANNA PAPPIUS
Lecturer in Clinical Psychology	BRENDA MILNER
Demonstrator in Neurology	IRVING HELLER
Demonstrators in Neurosurgery	RANKIN HAY VICTOR KLEIDER MARK RAYPORT
Demonstrator in Neuropathology	WARREN SIGHTS
Demonstrator in Electroencephalography	LEWIS HENDERSON

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Fellows of the Montreal Neurological Institute:

J. Antonio Aguilar
Mary Jane Aguilar
Hans Bammer
Emil Berger
Charles Branch
Daniel Britchetti
Alexander de Willebois
Liselotte Gerhardt
A. Maxwell House
Kituya Iwama
John C. Kennady
Ellis B. Keener
Yoon Bom Kim
Richard Lende
John Litvak
A. Robert Martin
Hugh McDonald
Enrique Ramon Moliner
John C. Pace
Phanor L. Perot
Mitsuo Numoto
Jack Orbach
Armando Ortiz
Gianfranco Ricci
Bice Ricci
Hugh Samson
Chun-Jen Shih
Antone Taraz
Gordon Thompson
Chen Tsai
Vincenzo Valentino
Danica Vanecek

SECOND YEAR

2A ANATOMY AND PHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM (Anatomy 2 and Physiology 2). Two hours lecture, two hours laboratory and one hour demonstration per week, during the first term.

This is one course, given by the Departments of Anatomy, Neurology and Neurosurgery, and Physiology.

Professors McNaughton and Jasper

2B NEUROLOGICAL ASPECTS OF PHYSIOPATHOLOGY. 2 lectures. Department of Medicine, Course II, 1. *Professor Rasmussen*

2C NEUROLOGICAL EXAMINATION OF THE NERVOUS SYSTEM. 2 theatre clinics. M.G.H. Department of Medicine. *Dr. Tallow*

THIRD YEAR

3A SURVEY OF NEUROLOGY AND NEUROSURGERY. 23 lectures. Saturdays, 8:45 to 9:40. M.N.I. Amphitheatre.

Professors Rasmussen, McNaughton and staff

FOURTH YEAR

4A NEUROLOGICAL AND NEUROSURGICAL CLINICS. 19 lecture clinics. Saturdays, 10:00 to 11:00. M.N.I. Amphitheatre.

Professors Cone, Robb and staff

4B-1 CLINICAL DEMONSTRATIONS. R.V.H. Outpatient Department. Monday and Thursday*, 2:00 to 3:00. *Professor McNaughton and Assistants*

4C-1 NEUROLOGY WARD CLASSES. Wednesdays, 8:45 to 9:45 a.m. M.N.I. (R.V.H. group) *Professor McNaughton and Assistants*

4B-2 and 4C-2 CLINICAL DEMONSTRATIONS. M.G.H. Outpatient Department. Mondays and Fridays, 2:00 to 3:00. *Dr. Tatlow and Assistants*

4D-1 NEUROSURGERY WARD CLASSES. M.N.I. (R.V.H. group) Mondays, 1:00 to 2:00. *Professor Cone and Assistants*

4D-2 NEUROSURGERY WARD CLASSES. M.N.I. (M.G.H. group) Thursdays, 1:00 to 2:00. *Professor Elvidge and Assistants*

4E-1 NEUROLOGY SEMINAR. Wednesdays, 2:00 to 3:00. M.N.I. (M.G.H. group) *Professor McNaughton and Assistants*

4E-2 NEUROLOGY SEMINAR. M.G.H. Outpatient Department. Fridays, 3:00 to 4:00. (M.G.H. group) *Dr. Tatlow and Assistants*

Fourth year students in Medicine at the Royal Victoria Hospital are assigned some neurological cases in the Montreal Neurological Institute for case reporting.

ELECTIVE COURSES

A. SEMINAR IN NEUROANATOMY, M.N.I.

1. This course in given in combination with course Med. 2A "Anatomy and Physiology of the Central Nervous System"—September to end of November.

   Additional graduate seminars will be held co-ordinated with Course B.

   Graduate students are expected to pass the same examination which is given in undergraduate course Med. 2A, but with higher standing, and to act as demonstrators. *Professor McNaughton*

2. Advanced Neuroanatomy for selected group; brain modelling, beginning in January; times to be arranged. *Professor McNaughton*

B. SEMINAR IN NEUROPHYSIOLOGY.

This course is given in two parts, (1) lectures and examination together with undergraduate course Med. 2A "Anatomy and Physiology of the Central Nervous System" and (2) weekly seminars and demonstrations co-ordinated with Course A (4 months, beginning in December). Mondays, 4:30 to 6:00 p.m. *Professor Jasper*

*Two Thursdays per month only.

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C. COLLOQUIUM IN CLINICAL NEUROLOGY.

1 hour weekly, clinics and lectures, Wednesdays, 5:00 p.m. M.N.I. (9 months). *Staff and Visiting Lecturers*

D. SEIZURE MECHANISMS AND CEREBRAL LOCALIZATION: CLINICAL ELECTROENCEPHALOGRAPHIC, AND ROENTGENOGRAPHIC CONFERENCE.

M.N.I. 1½ hours weekly (9 months).
Professors Penfield, Rasmussen, Jasper, McNaughton and McRae

E. OUTLINE OF NEUROCHEMISTRY.

Lectures and demonstrations, M.N.I. (2 months, beginning in April). Mondays 4:30 to 6:00 p.m. *Professor Elliott*

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

Professor — G. B. MAUGHAN, *Chairman*

Associate Professor — C. V. WARD

Assistant Professors
W. R. FOOTE
J. P. A. LATOUR
K. T. MACFARLANE
ELEANOR PERCIVAL
G. A. SIMPSON
G. J. STREAN

Lecturers
MYER HENDLEMAN
J. L. MACARTHUR
THOMAS PRIMROSE
J. H. ROUTLEDGE
D. W. SPARLING

Demonstrators
P. R. BLAHEY
H. B. BOURNE
J. R. DODDS
GRACE DONNELLY
SIMON GOLD
E. A. MACCALLUM
HARRY OXORN
JOSEPH PORTNUFF
F. J. TWEEDIE
M. H. V. YOUNG

The course is arranged to impart a practical knowledge of Obstetrics, Gynaecology, and the Care of the New-born. The value of close observation of the patient in the normal and the abnormal state is stressed.

The privilege of serving as an interne in the hospital for two weeks, treating the patients from the time of admission till discharge from hospital, is an ideal arrangement. Rooms are provided in the Women's Pavilion where the students may reside, in groups of five, during this period. Individual instruction Is given by the Staff.

REQUIRED COURSES

SECOND YEAR—

Twelve lectures are given as an introduction to the subject. These lectures are on the anatomy and physiology of the genital tract. The physiology of pregnancy is also described.

Professor Maughan and Drs. Primrose and Latour

THIRD YEAR—

OBSTETRICS

1. Twenty-eight lectures to teach the fundamentals of pregnancy, labour, and the puerperium. *Senior members of the Staff*

2. Eighteen demonstrations of obstetrical palpation and manikin instruction to illustrate the diagnosis and management of normal and abnormal presentations. *Members of Staff*

3. Six clinics in the caseroom or wards to teach the care of the patient in the hospital. *Members of Staff*

4. Six seminars on principles and theory of obstetrics. *Members of Staff*

5. Six classes to demonstrate the care of the newborn. *Professor Aubrey K. Geddes and Assistants*

GYNAECOLOGY

1. Five lectures to describe the more common gynaecological diseases. *Professor Ward and Assistants*

2. Thirty-six demonstrations or lectures at the bedside or in the out-patient department, to demonstrate the diagnosis and treatment of gynaecological disorders. *Professor Ward and Assistants*

FOURTH YEAR—

OBSTETRICS

1. Thirty-four clinical demonstrations to illustrate the management of obstetrical complications. *Progessor Maughan*

2. Group ward rounds once a week to present the current interesting cases. *Professor Maughan and Dr. Primrose*

3. Twenty-four hours in bedside clinics and the caseroom to teach the management of the obstetrical patient. *Senior members of the Staff*

4. Facilities are presented for attending sixteen antenatal clinics. *Members of the Staff*

5. Four hours of Manikin instruction. *Members of the Staff*

6. Four lectures on Newborn Paediatrics together with eight demonstrations in the nurseries. *Professor A. K. Geddes and Assistants*

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GYNAECOLOGY

1. Twelve bedside clinics to be given in the gynaecology wards.
Senior members of the Staff

2. Eight lecture-demonstrations in Gynaecological Pathology.
Dr. Latour and Assistants

3. Four hours of clinical instruction are given on the diagnosis and treatment of genital cancer. *Dr. Latour*

4. Facilities are extended for attending sixteen gynaecology outpatient clinics. *Members of the Staff*

5. Four revision seminars on Clinical Endocrinology.
Members of the Staff

Obstetrics Text and Reference Books: Beck, Obstetrical Practice; De Lee-Greenhill, Principles and Practice of Obstetrics; Eastman, Textbook of Obstetrics; Gibbard, Textbook of Midwifery; W. Shaw, Textbook of Midwifery.

Gynaecology Text and Reference Books: Curtis-Huffman, Textbook of Gynaecology; Novak, Textbook of Gynaecology; Shaw, Wilfred, Textbook of Gynaecology; Ten Teachers, Diseases of Women.

DEPARTMENT OF OPHTHALMOLOGY

Professor	JOHN C. LOCKE, *Chairman*
Associate Professor	BENJAMIN ALEXANDER
Assistant Professor	J. V. V. NICHOLLS
Lecturers	L. S. S. KIRSCHBERG D. W. McDONALD WILLIAM TURNBULL R. J. VIGER
Demonstrators	S. T. ADAMS R. A. BOURNE J. B. CONROY HUGH DUNCAN H. WYATT LAWS SEAN B. MURPHY R. W. PEARMAN

The undergraduate work in Ophthalmology, which is designed to meet the needs of a well-trained general practitioner, embraces the following courses in the Third and Fourth years of the Medical course:

THIRD YEAR

1. ROUTINE EXAMINATION OF THE EYE

In this work the class in small groups is drilled in the various tests in the routine examination of the eye, every effort being made to demonstrate methods which, though simple, are adequate and call for the minimum outlay for equipment. Instruction in the use of the ophthalmoscope and familiarization with the appearance of the normal fundus of the eye are an important feature of this preliminary course.

Five hours.

2. LECTURE DEMONSTRATIONS TO ENTIRE CLASS

This course, variously illustrated, covers the general principles and the systematic side of the subject. It has been designed to furnish a background of essential information for the clinical work of the final year.

Ten hours.

FOURTH YEAR

CLINICAL OPHTHALMOLOGY

This teaching is conducted in the Ophthalmic clinics and wards of the Montreal General and Royal Victoria Hospitals. The class is divided into groups of ten, each group receiving twenty-five hours instruction. Ocular problems that are of greatest moment in general practice are discussed. This includes the external diseases of the eye, the main ophthalmological findings in systemic disorders, affections of the nervous system, and as far as possible a co-relation of the clinical and histological ocular changes.

Textbooks: May and Worth, Gifford, Wolff, Diseases of the Eye.

Reference books: Duke-Elder.

DEPARTMENT OF OTO-LARYNGOLOGY

Professor	W. J. McNALLY, *Chairman*
Assistant Professors	E. E. SCHARFE
	G. E. TREMBLE
Lecturers	H. E. McHUGH
	F. W. SHAVER
	E. A. STUART
Demonstrators	J. D. BAXTER
	ARNOLD GROSSMAN
	R. W. HYDE
	E. JOHN SMITH

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Instruction in Oto-Laryngology is given to students of the Third and Fourth years and is designed to meet the needs of the general practitioner.

The clinical courses are carried on in the wards and out-patient departments of the Montreal General and the Royal Victoria Hospitals, where the large clinics afford the students ample opportunity of receiving practical instruction. In these two hospitals there are about fifty beds set apart for this specialty.

The practical work is conducted in small groups so that personal instruction and supervision are given to each student.

Medical motion pictures are used as a supplement to the class-room lecture and clinical demonstration.

THIRD YEAR

A course of 6 demonstrations is given to students of the Third year. These demonstrations deal with the normal anatomy of the ear, nose, and throat, and with methods of examination. The students are required to examine the patients and recognize the normal and common pathological conditions of the ear, nose, and throat. Ward rounds are made to illustrate the pre- and post-operative methods of treatment.

Lecture Course:

Twelve practical illustrated lectures are given to the whole class. Special emphasis is laid on those surgical procedures which the general practitioner should be capable of performing.

Instruction will be given on the practical value of the bronchoscope in the diagnosis and treatment of diseases of the tracheo-bronchial tree and the oesophagus.

FOURTH YEAR

Sixteen clinical demonstrations are given in the out-patient departments and wards of the hospitals. The students are expected to examine the patients and report on them. Differential diagnosis and treatment is stressed.

Text and Reference Books: Ballenger, A Manual of Otology, Rhinology, and Laryngology (Macmillan); Geo. D. Wolfe, Ear, Nose, and Throat (Lippincott); W. Wallace Morrison, Diseases of the Nose, Throat, and Ear (McAinsh); Jackson and Jackson, Diseases of the Nose, Throat, and Ear (W. B. Saunders); Chevalier Jackson, Bronchoscopy, Oesophagoscopy, and Gastroscopy (W. B. Saunders); Sir St. Clair Thomson and Negus, Diseases of the Nose and Throat (McAinsh). Logan Turner's Diseases of the Nose, Throat, and Ear, Edited by Douglas Guthrie.

DEPARTMENT OF PAEDIATRICS

Professor	ALAN ROSS, *Chairman*
Associate Professors	R. L. DENTON
	A. K. GEDDES
	JESSIE SCRIVER
Assistant Professors	A. L. JOHNSON
	P. N. MACDERMOT
	E. M. WORDEN
Lecturers	H. L. BACAL
	BEN BENJAMIN
Demonstrators	HELEN BRICKMAN
	D. K. CLOGG
	T. A. COWAN
	S. I. DOUBILET
	F. CLARK FRASER
	VICTOR C. GOLDBLOOM
	ELEANOR HARPUR
	DAVID KLEIN
	FRANCES MCCALL
	D. R. MCCRIMMON
	G. H. NICKERSON
	J. H. O'NEILL
	SYDNEY PEDVIS
	FREDERICK SHIPPAM
	HYMAN SURCHIN
	W. W. TIDMARSH
	S. J. USHER
	ISOBEL WRIGHT
Teaching Fellows	J. S. CHARTERS
	R. B. GOLDBLOOM
	PIERRE SENECAL

REQUIRED COURSES

LECTURES

1. (a) CHILD DEVELOPMENT AND HUMAN RELATIONSHIPS

In the course of fourteen periods with the First year class, a child psychiatrist and a pediatrician collaborate at each session in presenting various aspects of child development from the prenatal period to adolescence. With the aid of patients and appropriate films, human relations and their development are discussed from the broadest possible point of view.

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(b) An introductory course of 12 lectures in the winter term of the Second year covering physical and mental development of the infant and child, the bases of nutritional requirements of the growing child, mineral and water metabolism, the embryology of congenital defects.

(c) A series of 36 lectures once weekly during the Third year designed to cover the various aspects of Diseases of Children; Nutrition, Hygiene, Infections and Communicable Diseases, Preventive Medicine, etc. *Staff*

2. DISEASES OF THE NEWBORN: ROYAL VICTORIA MONTREAL MATERNITY HOSPITAL

(a) A weekly clinic demonstration to groups of students of the Third year during their obstetrical quarter.

(b) A weekly lecture to groups of Fourth year students during their four weeks in Obstetrics.

(c) A bi-weekly demonstration in the nurseries to the group of Fourth year students in residence during their four weeks in Obstetrics.

Professor Geddes and Staff

3. CLINICAL PAEDIATRICS

(a) During the Third year the class is divided into groups, each group devoting the mornings of six weeks to clinical instruction at the Montreal Children's Hospital. Work is divided between the wards and the out-patient department.

(b) Groups during the final year spend four weeks entirely at the Montreal Children's Hospital as clinical clerks and taking part in bedside clinical conferences. *Staff*

(c) Care and feeding of the normal infant, immunization procedure, preventive paediatrics; Child Health clinics. *Staff*

(d) Infectious Diseases.

A series of demonstrations to groups of students on the common infectious diseases is given at the Alexandra Hospital as part of the instruction of the final year. *Professor Worden*

Textbooks: Holt and McIntosh, Diseases of Infancy and Childhood Mitchell and Nelson, Diseases of Infants and Children; Ellis, Diseases of Infancy and Childhood; Paterson, McCreary et al, Pediatrics.

Reference Books: Brenneman, Practice of Pediatrics; Gamble, Extracellular Fluids; Smith, Physiology of the New Born Infant; Caffey, Pediatric X-Ray Diagnosis; Windle, Physiology of the Fetus; Kanner, Child Psychiatry; Wilkins, The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence; Talbot, Sobel, McArthur and Crawford, Functional Endocrinology; Ford, Diseases of the Nervous System in Infancy, Childhood and Adolescence; Gesell, The Embryology of Behaviour; DeSanetis and Varga, Handbook of Pediatric Medical Emergencies; Green and Richmond, Pediatric Diagnosis.

DEPARTMENT OF PARASITOLOGY

Professor — T. W. M. CAMERON, *Chairman*

Associate Professor — DONALD FAIRBAIRN

Assistant Professors — R. P. HARPUR; L. K. WHITTEN

Lecturer — EUGENE MEEROVITCH

REQUIRED COURSES

SECOND YEAR

2A. HUMAN PARASITOLOGY

This course on the animal parasites of man (protozoa, helminths, and arthropods) comprises about 50 hours of instruction. Special attention is given to parasites found in North America, their diagnosis, bionomics, and pathogenesis as well as to the more important animal vectors of disease. Exotic forms are more briefly discussed. In the practical class, each student examines all the important species as well as the lesions caused by them.

First term—Two lectures and one laboratory period per week.

ELECTIVE COURSES

The Department not only provides facilities for advanced research work at the Institute of Parasitology, but offers didactic courses in general and comparative parasitology and courses leading to the degrees of M.Sc., and Ph.D. (See Announcement of the Faculty of Graduate Studies and Research.)

Textbook: T. W. M. Cameron, The Parasites of Man in Temperate Climates (2nd ed.).

DEPARTMENT OF PATHOLOGY

Strathcona Professor — ————, *Chairman*

Associate Professors — G. C. MCMILLAN; J. E. PRITCHARD; DOUGLAS O. W. WAUGH

Assistant Professors — W. H. MATHEWS; A. C. RITCHIE; F. W. WIGLESWORTH

Lecturers — SEAN MOORE; PAULA H. SCHOPFLOCHER

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Sessional Lecturer	D. S. KAHN
Demonstrators	M. J. AGUILAR
	S. M. GREENHORN
	I. KERNER
	S. RITCHIE
Sessional Demonstrator	M. A. SIMON
Teaching Fellows	W. J. KINTZEN
	M. M. SALISNJAK

REQUIRED COURSES

1. COURSE IN GENERAL PATHOLOGY (SECOND YEAR)

A. Lectures with epidiascopic and microscopic demonstrations during the Autumn and Winter terms totalling 60 hours.

Professors ———, McMillan, Ritchie, and Douglas Waugh

B. Practical laboratory classes during the Autumn and Winter terms totalling 72 hours.

Professor Ritchie with Demonstrators

2. COURSE IN SPECIAL PATHOLOGY (SECOND AND THIRD YEARS)

A. Lectures during the Spring term of Second year and throughout the third year totalling 96 hours.

Professor ——— and Staff

B. Two practical laboratory classes per week during the Winter and Spring terms of the Third year totalling 96 hours.

Staff and Demonstrators

C. One demonstration of gross pathological material per week to students in small groups throughout the Third year totalling 36 hours.

Lecturers and Demonstrators

3. COURSE IN APPLIED PATHOLOGY (THIRD AND FOURTH YEARS)

A. Pathological Conferences with demonstrations of current autopsy material. Once a week during the Autumn, Winter, and Spring terms (54 hours). *Professor ———*

B. Group instruction in performance of autopsies with demonstrations of autopsy findings, during Autumn, Winter, and Spring terms. Time according to material.

Pathological Institute	*Professor ——— and Dr. Seán Moore*
Montreal General Hospital	*Professors Pritchard and Mathews*
Montreal Children's Hospital	*Professor Wiglesworth*

Textbook: Anderson, Pathology (Mosby); Boyd, Text-Book of Pathology (Lea & Febiger); Karsner, Human Pathology (Lippincott); Moore, Text-Book of Pathology (Saunders); Wright, Introduction to Pathology (Longmans Green).

Reference Books:

General: Boyd, Surgical Pathology (Saunders); Boyd, Pathology of Internal Diseases (Lea & Febiger); Forbus, Reaction to Injury (Williams & Wilkins); Ogilvie, Pathological Histology (Livingstone); Willis, The Pathology of Tumours (Butterworth).

Special: Lumb, Tumours of Lymphoid Tissue (Livingstone).

Biggart, Pathology of the Nervous System (Livingstone); Buzzard and Greenfield, Pathology of the Nervous System (Churchill); Freeman, Neuropathology (Saunders).

Novak, Gynaecological and Obstetrical Pathology (Saunders); Geschikter, Diseases of The Breast (Lippincott); Geschikter and Copeland, Tumours of Bone (American Journal of Cancer).

Farber, The Post Mortem Examination (Charles Thomas); Saphir, Autopsy Diagnosis and Technique (Hoeber).

DEPARTMENT OF PHARMACOLOGY

Professor K. I. MELVILLE, *Chairman*

Assistant Professors B. G. BENFEY
L. E. HOKIN

The object of the course in pharmacology is to elucidate, as far as knowledge permits, the action of drugs, and thereby lay a sound foundation for drug therapy.

REQUIRED COURSES

1A. PHARMACOLOGY

The action of drugs is considered on the basis of information derived by means of experimental methods and careful clinical observation. The chemistry of the drugs studied is emphasized in order that the student may have a good foundation upon which to follow future developments of the subject intelligently.

Two lectures a week during the Autumn and Winter terms. Second year.

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1B. PHARMACOLOGICAL LABORATORY

The experiments are chosen to illustrate the lecture course.

One period (three hours) a week during the Autumn and Winter terms.

Second year. CONFERENCES. During the year four conferences of 45 minutes each and limited to six students, will be arranged. These conferences will replace the regular laboratory periods at the times specified.

Textbooks: Krantz and Carr, Pharmacologic Principles of Medical Practice; Clark, Applied Pharmacology; Drill, Pharmacology in Medicine; Goodman and Gilman, Pharmacological Basis of Therapeutics (2nd ed.).

OPTIONS

Suitably prepared students may undertake research at any time; by application to the Chairman of the Department.

Advanced courses leading to the degrees of M.Sc. or Ph.D. will be arranged to suit individual cases. See Announcement of the Faculty of Graduate Studies.

DEPARTMENT OF PHYSIOLOGY

Joseph Morley Drake Professor	F. C. MACINTOSH, *Chairman*
Professor	A. S. V. BURGEN
Associate Professors	B. D. BURNS
	H. GARCIA-AROCHA
Assistant Professors	SIMON DWORKIN
	PAUL SEKELJ
	KATHLEEN G. TERROUX
Lecturers	A. L. JOHNSON
	G. C. SALMOIRAGHI
	P. B. STEWART
Sessional Lectures	G. B. FRANK
	NORAH HILDEBRAND

REQUIRED COURSES

FIRST YEAR

1. PHYSIOLOGY

Tuesday, Thursday, Saturday at 9 a.m., beginning in October.

1D. DEMONSTRATIONS

Friday at 3 p.m.

1L. PHYSIOLOGICAL LABORATORY

Three hours a week, from November.

INTRODUCTION TO MEDICINE

One hour a week from October. A presentation of selected clinical material, from the standpoint of the basic medical sciences. The sessions are conducted in turn by the Departments of Anatomy, Biochemistry, and Physiology.

SECOND YEAR

2. ANATOMY AND PHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM

Two hours lecture, two hours laboratory, and one hour demonstration a week, during the first term.

This is one course, given by the Departments of Anatomy, Neurology and Neurosurgery, and Physiology.

Textbooks:

Introductory: Bell, Davidson and Scarborough, Textbook of Physiology and Biochemistry; Best and Taylor, The Living Body.

Recommended General Texts: Guyton, Textbook of Medical Physiology; Wright, Applied Physiology.

Reference Texts: Best and Taylor, The Physiological Basis of Medical Practice; Evans, Human Physiology; Fulton, Textbook of Physiology; Houssay, Human Physiology.

ELECTIVE COURSE

1E. SELECTED TOPICS IN PHYSIOLOGY

These are discussed from the point of view of current research in the Department.

2 hours a week, from January.

DEPARTMENT OF PSYCHIATRY

Professors

D. E. CAMERON, *Chairman*
A. E. MOLL

Associate Professors

R. A. CLEGHORN
R. B. MALMO
MIGUEL PRADOS
BARUCH SILVERMAN
W. CLIFFORD M. SCOTT
TAYLOR STATTEN
J. S. TYHURST
E. D. WITTKOWER

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Assistant Professors

SAUL ALBERT
C. BOS
T. E. DANCEY
V. A. KRAL
H. E. LEHMANN
A. W. MACLEOD
G. E. REED
M. SAFFRAN
C. SHAGASS
T. L. SOURKES

Lecturers

JOHANN AUFREITER
HASSAN AZIMA
JACQUES BEAUBIEN
M. K. BIRMINGHAM
T. J. BOAG
H. A. BOWES
C. CAHN
HYMAN CAPLAN
BRUNO CORMIER
P. G. EDGELL
B. GRAD
R. C. M. HAMILTON
L. G. HISEY
GUSTAV MORF
C. H. SKITCH
R. B. SLOANE
MANUEL STRAKER
G. C. TAYLOR
MARTIN TUNIS
SAUL WILNER

Demonstrators

FRIEDL AUFREITER
FERN CRAMER
G. HANRAHAN
ANGELA HEFFERMAN
BRIAN HUNT
R. C. A. HUNTER
HENRY KRAVITZ
L. HUTSON
I. KENT
D. LEVIN
ALAN MANN
LEO MERGLER
J. NAIMAN
G. J. SARWER-FONER
C. C. SMITH
LIBUSE TYHURST

Research Assistants

J. F. DAVIS
J. G. HENDERSON
LEO SALK

REQUIRED COURSES

FIRST YEAR

CHILD DEVELOPMENT AND HUMAN RELATIONSHIPS: A total of 16 hours, the first two being introductory lectures. In the remaining 14 hours, a child psychiatrist and a pediatrician will collaborate at each session in presenting various aspects of child development from the prenatal period to adolescence. With the aid of patients and appropriate films, human relations and their development will be discussed from the broadest possible point of view. *Professors Cameron, Ross (Pediatrics), Statten, and Staffs*

SECOND YEAR

Two courses of lectures, totalling 24 hours, on basic behavioural disorders are given during the Second year. The first course deals primarily with psychopathology and the second with clinical cases and the recognition of the nature of symptoms. Clinical demonstrations are included.

Professors Reed and Lehmann and Staff

THIRD YEAR

70 hours of clinical instruction will be given during the Third year. This instruction is given primarily on the wards of the teaching hospitals and in the out-patient departments.

Drs. Bos, Cleghorn, Hisey, Taylor, Tyhurst, and Wilner

FOURTH YEAR

Clinical demonstration, out-patient instruction, and ward rounds are held during the Fourth year. Certain of these are devoted to early behavioural disturbances, psychosomatic and toxic states, and drug addictions.

Professors Cameron, Moll, Dancey, Prados, and Reed, and Staffs

A course of 8 lectures on Community and Preventive Psychiatry is given during the Fourth year.

Professor Silverman

DEPARTMENT OF RADIOLOGY

Professor	CARLETON B. PEIRCE, *Chairman*
Associate Professors	J. J. L. BOUCHARD JOSEPH W. MCKAY D. L. MCRAE
Assistant Professors	E. F. CRUTCHLOW J. S. DUNBAR R. G. FRASER
Assistant Professor of Physics	L. G. STEPHENS-NEWSHAM
Lecturer	N. M. BROWN
Demonstrators	R. M. CUNNINGHAM B. B. HALE M. N. LOUGHEAD D. J. SIENIEWICZ

FIRST YEAR

In co-operation with the Department of Anatomy, demonstrations are given on the roentgenologic anatomy of the skeletal, respiratory, gastro-intestinal, and urogenital systems, including fluoroscopic demonstrations of functional anatomy of joints, the thoracic viscera, and the alimentary tract.

Professor Peirce and Staff

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SECOND YEAR

INTRODUCTION TO RADIOLOGY

In co-operation with the Department of Medicine (Course II 2) as an introduction to special methods in Physical Diagnosis, the various means of radiologic examination are demonstrated to small groups of students in the Teaching Hospitals. The fluoroscopic and rentgenographic methods of study of the cardio-respiratory and gastro-intestinal systems especially are compared with clinical methods in physical examination.

Professors Peirce and McKay and Staff

THIRD YEAR

III ROENTGEN PATHOLOGY AND RADIATION THERAPY

A course of 24 lectures presenting the general principles of roentgen interpretation, systematic roentgen pathology, and the therapeutic use of ionizing radiations.

Professors Peirce, Bouchard, McKay, McRae, Stephens-Newsham, and Staff

FOURTH YEAR

IV CLINICAL RADIOLOGY

Conference periods, two hours weekly each quarter, during which the students assigned to Internal Medicine, Paediatrics and Surgery in the several Teaching Hospitals discuss clinical case material with the members of the Department.

Professors Peirce, Bouchard, McKay, and Staff

Text and Reference Books: Meschan, Normal Radiographic Anatomy; Sante, Principles of Roentgenological Interpretation; Holmes and Robbins, Roentgen Interpretation; Rigler, Outline of Roentgen Diagnosis; Hodges, Lampe and Holt, Radiology for Medical Students; Shanks, Kerly and Twining, Text Book of Radiology; Golden et al., Diagnostic Radiology; Pancoast, Pendergrass, and Schaeffer, Head and Neck in Roentgen Diagnosis; Kohler, Roentgenology; Wesson and Ruggles, Urological Roentgenology; Barclay, The Digestive Tract; Pohle, Theoretical Principles of Roentgen Therapy; Glasser, Quimby, Taylor, and Weatherwax, Physical Foundations of Radiology.

POSTGRADUATE INSTRUCTION

DIPLOMA IN RADIOLOGY

Details of the Postgraduate course leading to the Diploma in Radiology of the Faculty of Medicine may be obtained from the Dean's Office or the Chairman of the Department.

Postgraduate training prerequisite to certification in the specialty by the Royal College of Physicians and Surgeons (Canada) or the American Board of Radiology is available in the teaching hospitals for selected graduates of approved Faculties or Schools of Medicine.

DEPARTMENT OF SURGERY

Professors

P. G. Rowe, *Chairman*
D. R. Webster

Associate Professors

S. J. Martin
D. R. Murphy
A. L. Wilkie

Assistant Professors

S. G. Baxter
H. L. Dawson
C. M. Gardner
J. W. Gerrie
J. C. Luke
C. A. McIntosh
E. A. McNaughton
H. S. Morton
H. F. Moseley

Lecturers

H. A. Baxter
W. M. Couper
J. C. Dickison
F. N. Gurd
G. A. Holland
G. D. Little
J. R. McCorriston
J. D. Palmer
J. C. Sutton
A. M. Vineberg
F. M. Woolhouse

Demonstrators

F. D. Ackman
A. R. Bazin
H. E. Beardmore
J. A. Drummond
R. L. Estrada
J. F. Hopkirk
A. F. Jones
G. M. Karn
R. N. Lawson
R. C. Long
H. F. Owen
D. W. Ruddick
H. J. Scott
Israel Shragovitch
E. J. Tabah
A. G. Thompson

ORTHOPAEDIC SURGERY

Assistant Professors

J. G. Petrie
J. G. Shannon

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Lecturers	A. A. Butler J. A. L. Walker
Demonstrators	Robert G. Townsend C. Laird Wilson

UROLOGY

Assistant Professors	A. B. Hawthorne R. G. Reid
Lecturers	S. A. MacDonald J. T. MacLean
Demonstrators	K. J. MacKinnon C. A. Moore Alex. Strasberg

REQUIRED COURSES—

SECOND YEAR

Surgical teaching begins in the Winter term (24 weeks) of the Second year. In this year special attention is directed to the instruction and training of the student in proper methods of physical examination from the surgical point of view. At the same time, instruction is given in methods of surgical technique, and the student is introduced to the simpler types of fractures and dislocations.

2A. A course of lectures (22) covering the history of Surgery and an introduction to the study of surgical diseases.

2B. Group classes in the wards of the Montreal General and Royal Victoria Hospitals. At these, small groups of students are instructed in methods of examination as applied to surgery and its allied specialties.

THIRD YEAR

The student comes into a more intimate contact with the patients, and in the surgical trimester is assigned cases, writes case reports, acts as dresser, and assists at operations.

*3A. Amphitheatre clinics and demonstrations in the Montreal General and Royal Victoria Hospitals, one day a week throughout the year.

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*Amphitheatre Clinics 3A and 4A are so arranged that all surgical subjects are presented during the two year course

3B. GROUP WARD CLASSES in the Montreal General and the Royal Victoria Hospitals. Four times a week during the term.

3C. CASE REPORTING. Patients are allotted to students who act as reporters, dressers, and assistants at operations.

FOURTH YEAR

*4A. AMPHITHEATRE CLINICS AND DEMONSTRATIONS in the Montreal General and Royal Victoria Hospitals alternately, once a week throughout term.

4B. GROUP WARD CLASSES AND WARD ROUNDS in the Montreal General and Royal Victoria Hospitals, four times a week during the surgical quarter.

4C. CASE REPORTING

4D. CLINICO-PATHOLOGICAL CONFERENCES once a week during the term, jointly with the Department of Pathology, at the Montreal General and Royal Victoria Hospitals.

4E. It is compulsory that every student must be in residence for a period of one week at either the Montreal General Hospital or the Royal Victoria Hospital during the term in Surgery.

SURGICAL DISEASES OF CHILDREN—

Instruction in the surgical diseases of children is given during the trimester in which the students are assigned to paediatrics at the Children's Memorial Hospital, as follows:

4A. AMPHITHEATRE CLINICS once a week throughout trimester.

4B. GROUP WARD CLASSES three times a week throughout trimester.

ORTHOPAEDIC SURGERY—

FOURTH YEAR

4A. CLINICAL LECTURES. A course of 8 lectures given at the hospitals.

4B. WARD CLASSES at the Montreal General and Royal Victoria Hospitals, once a week during the surgical trimester.

4C. GROUP CLASSES IN THE OUT-DOOR DEPARTMENT of the Montreal General and Royal Victoria Hospitals, twice a week during the surgical trimester.

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*Amphitheatre Clinics 3A and 4A are so arranged that all surgical subjects are presented during the two year course.

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ANAESTHESIA —

Students are given practical instruction in the administration of anaesthetics, during their surgical trimesters in the Fourth year at the Montreal General and Royal Victoria Hospitals.

Close correlation is maintained with the Departments of Anatomy and Physiology as well as with the concurrent instruction in Medicine, Pathology, and Bacteriology.

The course is graded and the student is required to qualify in each grade before he is permitted to advance to succeeding grades.

UROLOGY —

SECOND YEAR

2A. CLINICAL UROLOGY

Group classes, 4 demonstrations, in which instruction in methods of Urological examination is given in the Montreal General and Royal Victoria Hospitals. (*See Surgery 2B.*)

FOURTH YEAR

4A. CLINICAL LECTURES. A course of theatre clinics in each of the hospitals.

4B. UROLOGICAL CLINICS. Ward classes.

The Montreal General Hospital—3 classes a week.

Royal Victoria Hospital—3 classes a week.

4C. CASE REPORTING IN UROLOGICAL WARDS

Instruction in surgery and the surgical specialties is given in the form of didactic lectures, amphitheatre clinics, and demonstrations and group teaching in the wards and out-patient departments of the teaching hospitals. The course is graded. The student must qualify in each year before proceeding to the next.

Textbooks:

1. *General Surgery:* Aird, Companion in Surgical Studies; Bailey, Demonstration of Physical Signs in Clinical Surgery; Berman, Principles and Practice of Surgery; Christopher, Minor Surgery; Christopher, Textbook of Surgery; Cole and Elman, Textbook of General Surgery; Homans, Textbook of Surgery; Moseley, Textbook of Surgery.

2. *Surgical Anatomy:* McGregor, Synopsis of Surgical Anatomy; Beasley and Johnson

3. *Fractures and Dislocations:* Watson Jones, Fractures and other Bone and Joint Injuries; Eve, Handbook of Fractures.

4. *Case Reporting:* J. Renfrew White, The Clinical Examination of Surgical Clases.

5. *Urology:* F. H. Colby, Essential Urology; Eisendrath and Rolnick, Urology; D. W. Davis, Mechanisms of Urologic Disease; Campbell, Clinical Pediatric Urology; Winsbury-White, Textbook of Genito-Urinary Surgery.

6. *Orthopaedic Surgery:* Mercer, Orthopaedic Surgery; Willis Campbell, Orthopaedic Operations.

GRADUATE INSTRUCTION—

1. Any medical graduate of McGill University who so desires may attend any of the regular undergraduate clinics. This opportunity frequently appeals to many of our graduates, who find in this plan a means of bringing their knowledge of medicine up to date.

2. Special graduate work is offered in every department, both in the laboratories and in the clinics. Applications in writing, addressed to the chairman of the department concerned, must state the qualifications and experience of the applicant and the nature of the work he desires to do. The minimum fee is $30.00 a term (10 weeks).

A Diploma in Tropical Medicine and Hygiene is granted by McGill University.

This course is conducted by the Department of Health and Social Medicine, with the collaboration of other departments in the Faculty of Medicine and the assistance of members of other faculties in the University who have a special interest in this field.

The Department of Health and Social Medicine is housed in quarters at 490 Pine Avenue West, within easy access of the Medical Building. The building contains ample accommodation for lectures, seminars, and demonstrations. In addition to the excellent facilities of the Library of the Faculty of Medicine, which are at the disposal of students, the Department has its own library and reading-room. The building is also the headquarters of the Student Health Service.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE (D.T.M. & H.)

The course of instruction occupies a full academic year. Classes for the first term include bacteriology and immunology, epidemiology, environmental hygiene, industrial hygiene, and public health organization and

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administration, vital statistics, biometrics, maternal, infant, pre-school and school hygienes, etc. Those for the second term are held at the Institute of Parasitology at Macdonald College of McGill University. The teaching collection at the Institute is a large and representative one.

The work is practical as well as theoretical, and includes a study of Parasitology and Medical Entomology, laboratory diagnoses of tropical and sub-tropical diseases, and lectures on the diseases of the tropics, on tropical hygiene, and minor sanitation.

Clinical instruction must, of necessity, be limited in temperate climates. This aspect is, therefore, deferred to the final part of the course which is given in the tropics at the conclusion of the didactic instruction. The course consists of clinical and field work for which arrangements have been made with Georgetown, British Guiana, Port of Spain, Trinidad, and Venezuela.

Candidates for the Diploma in Tropical Medicine and Hygiene must be graduates in medicine of a recognized university. Certain additional courses may be required of those who are not recent graduates or of those who have not had sufficient clinical practice.

The Fee for the Diploma in Tropical Medicine and Hygiene is $250, or $100 if preceded by a D.P.H. course or its equivalent.

Application must be made prior to June 1st.

BUILDINGS—

THE MEDICAL BUILDING

This building, erected in 1911, contains the Offices of Administration, the Medical Library (with its 74,000 volumes, its Reading Rooms, and their complete set of technical journals), the Department of Anatomy, and the Museums of Anatomy and Ethnology. The Faculty of Dentistry is also in this Building.

The Department of Anatomy, with its commodious laboratories, its dissecting room, with 50 tables, and its very unusual abundance of material, affords unequalled facilities for students. Moreover, graduates who desire opportunities for research are adequately cared for in this Department. The laboratories for Histology and Embryology have excellent facilities with space for 120 students, and smaller rooms for research.

THE BIOLOGICAL BUILDING

Completed in 1922, this building was erected on the site of the original Medical Building, which was partly destroyed by fire in 1907. The

extensive structure—184 feet by 60 feet—houses on each of its floors laboratories devoted respectively to Botany, Zoology, Genetics, Biochemistry, Physiology, and Pharmacology.

Each of these departments is amply provided with laboratories and units for undergraduate teaching and graduate research.

THE PATHOLOGICAL INSTITUTE

This building, which was opened for use in October, 1924, and which is connected with the Royal Victoria Hospital and the Montreal Neurological Institute by tunnels, is situated on the northeast corner of University Street and Pine Avenue, adjacent to the Medical Building. It provides accommodation for the departments of Pathology and Bacteriology and includes a Pathological Museum and museum workshops. It combines under one roof quarters for teaching and research in these departments, and it provides ample facilities and equipment for instruction of students, and the research work of the Staff.

THE MONTREAL NEUROLOGICAL INSTITUTE

This eight-storey building, which is situated on University ground adjacent to the Pathological Institute and the Royal Victoria Hospital, was opened in 1934. Unsurpassed in its equipment and facilities for research, as well as the medical and surgical treatment of disorders of the nervous system, it houses the University Department of Neurology and Neurosurgery, which conducts both undergraduate and graduate teaching in the Faculty of Medicine. In addition to wards, operating rooms, and laboratories for treatment and study of diseases of the nervous system, the building provides facilities for graduate study and research in the related fields of basic science.

THE ALLAN MEMORIAL INSTITUTE

In 1943 a large building and site were donated as a basis for the development of an Institute of Psychiatry. The building was reconstructed to permit of the establishment of a fifty bed unit, together with extensive research laboratories, and was officially opened July 12th, 1944. Since that time, both undergraduate and postgraduate teaching have been carried on.

THE DONNER BUILDING

The Donner Building for Medical Research, adjacent to the Medical Building, was completed in September 1948. Its erection was made possible through the generosity of William H. Donner of Philadelphia, the late founder of the International Cancer Research Foundation, who provided the funds necessary for the construction of a building entirely devoted to medical research.

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This building houses the Maxwell Lauterman Laboratories for Experimental Surgery and laboratories for Dentistry and Experimental Psychology.

HOSPITALS

Few medical schools on this continent offer better facilities than those enjoyed by the students of McGill University. Ideal academic and topographical conditions exist for the teaching of scientific and practical medicine.

The Medical Faculty is on the University Campus, and is thus in juxtaposition to the scientific laboratories of the University and to the largest teaching hospital in the city. Co-operation with the scientific and cultural departments of the University, as well as with clinical facilities, is thereby made easy.

The following hospitals and institutions are at the disposal of the teaching staff and students for clinical and pathological study:

Royal Victoria Hospital
Montreal General Hospital
Montreal Children's Hospital
Alexandra Hospital for Infectious Diseases
Verdun Protestant Hospital
Royal Edward Laurentian Hospital
Royal Victoria Montreal Maternity Hospital

The staffs of these institutions are appointed with the co-operation of McGill University and, for the most part, are teachers in the Medical Faculty. These affiliated hospitals contain over 3,000 beds.

The Royal Victoria Hospital, in juxtaposition to the University buildings, comprises the following units under one administration:

1. The Royal Victoria Hospital proper, or the Main Building;
2. The Ross Memorial Pavilion for private patients;
3. The Women's Pavilion—Royal Victoria Montreal Maternity;
4. The Allan Memorial Institute.

The total bed complement is 739, with 96 bassinets. Admissions total approximately 17,500 and confinements are in excess of 3,000 a year. There are some 50,000 visits annually to the Out-Patient Department. The University Clinic was established in 1924 and has facilities for both clinical laboratory work and research.

Post-mortems total 55 per cent of the deaths.

The number of resident physicians is 96.

The Royal Victoria - Montreal Maternity Pavilion, with 214 beds for obstetrical and gynaecological cases. In this institution there are 117 teaching beds and an organized out-patient service which is of the greatest benefit to the undergraduate student. In a typical year, the obstetrical service cared for over 3,000 confinements in the Hospital. In the gynaecological section, over 2,000 cases are admitted during the year.

There are ten resident physicians.

The Montreal General Hospital is a general hospital of 720 beds for the treatment of acute diseases. In a typical year, there were approximately 16,000 admissions, while out-patient consultations for the same period approximated 167,000. The resident and interne staff numbers 100.

The "Montreal General" was founded in 1821; two smaller buildings downtown had preceded it in 1816 and 1819. In actual age, therefore, it is not by any means the oldest hospital in Canada, but its record in clinical teaching is easily the longest on the North American continent.

As soon as the Hospital opened, its staff began to arrange for students and, in 1824, they opened the first Medical School in Canada, the Montreal Medical Institution, with 25 students. Their teaching was carried on partly at the Hospital.

It was this School which agreed to form the Medical Faculty of McGill University in 1828. The University at that time had practically no students of any kind, and as it was required by the terms of the McGill bequest that teaching should begin before 1829, on penalty of losing the estate, The Montreal Medical Institution, with its ready-made course, came as a salvation. That was the beginning of the long and intimate association between the Hospital and the University.

The Montreal Children's Hospital has 185 public beds, and, in a typical year, admitted 4,000 patients. The attendance at its out-door department totalled over 40,000 visits. This hospital admits all classes of cases of disease in children except pulmonary tuberculosis and the communicable diseases, and enables students to get a broad concept of paediatrics.

There were 111 autopsies in a typical year, which represented 84.6% of all deaths.

The number of resident physicians is 40.

The Alexandra Hospital for Infectious Diseases, opened in 1906, with modern wards, cubicles, and equipment, is regularly attended by students, who receive demonstrations on the essential features of the exanthemata.

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There are three wards for the treatment of tuberculosis in children. There are 150 beds (including 50 for tuberculosis) and the average yearly admissions range between 1,500 and 2,000.

There is a resident senior physician and there are three junior physicians.

The Verdun Protestant Hospital has 1,100 beds.

The Royal Edward Laurentian Hospital (Montreal Division), 3674 St. Urbain Street, consists of a large anti-tuberculosis dispensary and a 52-bed hospital unit designed and equipped for thoracic surgery. Its objectives are the study, prevention, and cure of tuberculosis. This Hospital, along with its Laurentian Division (located in Ste. Agathe des Monts) offers students excellent opportunities to obtain instruction in all aspects of chronic pulmonary disease, more particularly pulmonary tuberculosis.

THE MEDICAL LIBRARY

Honorary Librarian LLOYD G. STEVENSON

The Library occupies the central front section of the medical building. It contains more than 74,000 bound volumes and an extensive collection of pamphlets, theses, government publications, and other items.

On the third floor are the pleasant, well-lighted reading room capable of accommodating seventy-five readers, the periodical room, the catalogue, the charging desk, and exhibits of library treasures. The second floor contains the book stacks and three study rooms available to members of the teaching staff. The first floor is devoted to the technical operations of the library—ordering, cataloguing, etc.

The chief value of the Library is in its periodical collection. Relatively little in the way of important journal literature in all languages is not available in it. The book collection contains many rare volumes, some dating back to the sixteenth century. Among the books and journals the ophthalmological section, due in large measure to many gifts from the late Dr. Casey A. Wood, is excellent.

The Library is for the use of the members of the Teaching Staff, graduates of the Medical Faculty of the University, undergraduate students in the Faculty, graduates from other medical schools, showing proper credentials, and graduate nurses. Graduates living at a distance may borrow books and journals on payment of carriage both ways.

The Library is closed on Sundays, but is otherwise open daily during the academic session from 9 a.m. to 6 p.m., and 7:30 to 10 p.m., except Saturdays, when it is closed at 5 p.m. After June 15th it is open from 9 a.m. to 5 p.m.; Saturdays, 9 a.m. to 1 p.m. During July and August it is closed on Saturdays.

THE OSLER LIBRARY

Librarian — W. W. FRANCIS

Assistant Librarian — LLOYD G. STEVENSON

This special library of the history of medicine and science, collected by Sir William Osler with a view to its educational value, was bequeathed by him to his Alma Mater. The Osler Library, which comprises nearly 12,500 volumes, occupies a large room, beautifully equipped, on the third floor, convenient to the Medical Library. The collection is rich in early editions of the older literature, as well as in modern historical works, and its importance and usefulness are much enhanced by the donor's annotated catalogue. Planned and prepared by Osler along very unusual lines, the catalogue was completed, indexed, and printed after his death (Bibliotheca Osleriana, Clarendon Press, Oxford, 1929, xxxvi, 785 pp.).

The books are classified in eight sections, of which the first, the "Bibliotheca Prima," presents a bibliographical outline of the evolution of science (including medicine), and was planned to contain the essential literature arranged chronologically under the names of the greatest contributors to the advancement of knowledge. Another feature of the Library is its Incunabula, a valuable collection of 145 books printed in the fifteenth century.

The Osler Library is open daily, except Sunday, for the use of undergraduates and all who are interested. The Librarian will be glad to give advice or informal instruction to students. Accommodation is provided for readers. The books belonging to the original collection may not be borrowed or removed from the Library, but this restriction does not apply to the current works on the history and biography of medicine and science which are constantly being added.

MEDICAL SOCIETIES

McGILL UNDERGRADUATE MEDICAL SOCIETY

The Society is composed of the registered students of the faculty. Its purpose is:

(1) To transact all matters of business connected with the undergraduate body;

(2) To stimulate interest along medical lines;

(3) To assist students to express themselves in public with facility;

(4) To provide an enjoyable social evening, at the same time developing a strong spirit of faculty loyalty.

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Meetings are held every alternate Monday, at which addresses are given by prominent professional men, medical and otherwise. Case reports are also read and discussed by the members themselves.

The annual meeting is the last meeting in the spring, when the following officers are installed: Hon. President (elected from the Faculty), President, Vice-President, Secretary, Assistant Secretary, Treasurer, Reporter, and three Councillors (of whom two are chosen from the Faculty). These officers are elected by ballot one week before the annual meeting.

A prize competition has been established in the senior and junior subjects. The senior is open to all to write upon, while only students of the first three years are allowed to compete in junior subjects. The papers are examined by a board selected by the Faculty, and two prizes are awarded in each division. The papers are subject to the call of the Executive on December 1st, and must be handed in for examination before February 1st. The Society also controls the Students' Reading Room. English and American journals, as well as the leading daily newspapers are kept on file.

ALPHA OMEGA ALPHA HONORARY MEDICAL SOCIETY

This Society, which has Chapters in the various Medical Colleges of Canada and the United States, established a subsidiary branch at McGill University in 1912.

There are honorary, graduate, and undergraduate members. Honorary members are selected from such teachers as are more particularly interested in the advancement of scientific medicine. Undergraduate members are selected from those students who, during their earlier academic career, have shown promise of development and have attained honour rank. They are eligible for election in the Third and Fourth years.

Meetings are held every month throughout the session, and papers are read by honorary and active members, as well as by graduates. Once during the year an open meeting is addressed by a visitor who is prominent in the medical world.

OSLER SOCIETY

The Osler Society was founded in the Spring of 1921 by a number of undergraduates in Medicine, its object being to perpetuate the memory and teachings of Sir William Osler by the reading of papers and discussion of topics reflecting his ideals of a liberal medical education. Thus those interested may supplement their clinical and scientific knowledge by the consideration of those topics of medicine which are of historical and literary significance.

The membership includes men from each class in the faculty. Several professors have shown an active interest in the Society and have added a more mature note to the discussion. Each year an Honorary President has been elected from this older group.

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

Faculty of Dentistry

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

David L. Thomson, Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal*

James McCutcheon, D.D.S., M.S.D. — *Dean*

Mervyn A. Rogers, D.D.S. — *Associate Director of Clinical Facilities*

William Bentley, C.G.A., F.C.I.S. — *Bursar*

T. H. Matthews, M.A., LL.D. — *Registrar*

G. A. Grimson, B.Com. — *Comptroller*

A complete list of the teaching staff of the University, including the Faculty of Dentistry, is printed as a separate Announcement, which may be obtained from the Registrar's Office.

REQUIREMENTS FOR ENTRANCE

The minimum requirement for admission to the dental course is the satisfactory completion of two full years of study in a recognized College or Faculty of Arts and Science (or the equivalent thereof), including courses in the following subjects: English and Mathematics, one year of each; Physics, one year with laboratory work; Biology, one year of General Biology or Zoology with laboratory work (half year of Botany and half year of Zoology will be accepted, but not one year of Botany alone); Chemistry, two full courses, including one full course of Organic Chemistry with laboratory work.

Courses meeting these requirements are offered in the Faculty of Arts and Science of McGill University, where a student may take the two years of study required, or the second of the two if he has satisfied the requirements of the first year by Senior Matriculation, or otherwise.

On the successful completion of the Second year of the Dental course, students who have entered this Faculty from the Third year of the Faculty of Arts and Science of McGill University are eligible to appiy for their B.A. or B.Sc. degree. Application should be made, in writing. to the Dean of the Faculty of Arts and Science.

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Students are advised to take the course "Logic and Scientific Method" which is given as Philosophy 3 in the Faculty of Arts and Science at McGill University, or its equivalent elsewhere. Students who have completed the Organic Chemistry course (Chemistry 22) and who may be taking the Third year of the B.Sc. course previous to admission to the study of Dentistry are advised to include Biochemistry 31.

Particulars of the examinations leading to Junior and Senior Matriculation status are given in the School Certificate Examinations Announcement.

Applicants who have met the academic requirements are required to take an aptitude test before being admitted to the study of Dentistry.

Residents of the United States should take the "Medical College Admission Test" and the "American Dental Association Aptitude Test" and have the results of these tests sent, with their transcript of academic record, to the Faculty of Dentistry.

Application for admission to the Faculty of Dentistry must be made upon the regular application form which may be obtained from the Secretary of the Faculty. As the number of students in each class is limited, application should be made early and in any case not later than *March first*. Each application must be accompanied by a non-returnable fee of $5.00 in the form of a cheque or money order payable to McGill University.

A reservation fee of $50.00 is payable by the applicant within ten days of the receipt of notice that he has been accepted for admission. This payment will be credited towards the applicant's University fees, but will not be returned if he fails to register at the opening of the session.

PROFESSIONAL PRACTICE

In the case of those who intend to practise in the Province of Quebec it is essential that the candidate should:

(a) take at least the second of the above two years in an English-speaking Canadian University, recognized by McGill University, thus qualifying for eligibility to register with the College of Dental Surgeons of the Province of Quebec in the study of Dentistry.

(b) obtain from the College of Dental Surgeons of the Province of Quebec a Qualifying Certificate before proceeding with the dental course. Further information may be obtained from Dr. Denis Forest, Registrar of the College of Dental Surgeons of the Province of Quebec, 3607 St. Denis Street, Montreal 18, Quebec.

Candidates who have successfully completed the regular course as given in the Faculty of Dentistry, McGill University, may be granted the licence without further examinations upon payment of the required fee, provided they are registered with the College of Dental Surgeons of the Province of Quebec.

PROVINCIAL REGISTRATION

Applicants are reminded that a University degree in Dentistry does not in itself confer the right to practise the profession of Dentistry. It is necessary to comply with the dental laws of the country, state, or province in which it is proposed to begin practice. Each province in Canada at present has special requirements for its licence, and in all of them a certain standard of general education is insisted upon before the study of Dentistry may be begun. *Students who intend practising in Canada are advised to register their qualifications in the province in which they intend to practise, before they begin their university course.*

The following is a list of the Registrars of the Dental Boards of the several Canadian provinces. Students are advised to write for information whenever they are in doubt as to the regulations of any province.

Ontario—Dr. D. W. Gullet, 234 St. George St., Toronto 5.

Nova Scotia—Dr. G. M. Dewis, 269 Gottingen St., Halifax.

New Brunswick—Dr. S. K. Wetmore, 147 Germain St., Saint John.

Prince Edward Island—Dr. Heath McIntyre, Charlottetown.

Manitoba—Dr. J. F. Morrison, 416 Medical Arts Building, Winnipeg.

Alberta—Dr. R. A. Rooney, 523 Tegler Bldg., Edmonton.

Saskatchewan—Dr. L. J. D. Fasken, 2216 Angus Street, Regina, Sask.

Quebec—Dr. Denis Forest, 3607 St. Denis Street, Montreal 18.

British Columbia—Dr. Emery C. Jones, 217 Medical-Dental Bldg., Vancouver.

Newfoundland—Dr. E. P. Kavanagh, Rawlin's Cross, St. John's, Nfld.

NATIONAL DENTAL EXAMINING BOARD OF CANADA

The National Dental Examining Board of Canada issues a certificate to successful candidates which may be registered with any or all Canadian Provincial Licensing Boards for the purpose of securing a licence to practise in the respective province. Candidates must possess the following qualifications:

(a) be a Canadian citizen.

(b) have proof of matriculation as established by the Council on Dental Education of the Canadian Dental Association before beginning the study of dentistry.

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(c) have taken a minimum of two complete academic years, equivalent to two years liberal Arts and Science of a recognized university.

(d) have successfully completed four academic years of professional education in a dental school approved by the Council on Dental Education of the Canadian Dental Association.

(e) hold a degree in dentistry from a school of dentistry approved by the Council on Dental Education of the Canadian Dental Association.

(f) hold an Enabling Certificate from a Canadian dental licensing body. Detailed information may be obtained from — Dr. H. N. B. Beach, Secretary, National Dental Examining Board of Canada, 150 Metcalfe Street, Ottawa, Canada.

AMERICAN NATIONAL BOARD EXAMINATIONS

Students intending to practise in the United States are advised to contact Dr. Gerard J. Casey, Secretary, Council of the National Board of Dental Examiners, American Dental Association, 222 East Superior Street, Chicago 11, Illinois. Information should also be obtained from the Secretary of the licensing board of the specific state in which the student intends to practise.

REGISTRATION

Students in Dentistry register at the Registrar's Office either on Friday, August 30th or on Tuesday, September 3rd. Any student registering after the specified date will be required to pay a late fee. No students will be admitted after September 19th.

FEES

The University reserves the right to make changes without notice in its published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions as described in the General Information Pamphlet.

TUITION FEES

Annual undergraduate fee (including Students' Society and Dental Review fees)	$551.50
By instalments: Each of two instalments	278.25

REPEATING A YEAR

Students repeating a year pay $551.50

PARTIAL STUDENTS

Qualified partial students are admitted to one or more courses on payment of special tuition fees and fees for Student activities. For further particulars consult the Dean's Office.

EQUIPMENT AND SUPPLIES

In Second year—Crown and Bridge Model	30.00
In Second year—Operative Model (rental)	10.00
In Third year—Orthodontic material	20.00
In Third and Fourth years—Dental Cabinet (rental)	5.00
In Fourth year—Final practical examination material	30.00

AD EUNDEM FEE

Transfer students entering any year above the First pay a special *ad eundem* fee of $10.00

GENERAL REGULATIONS

Fees are due and payable at the Accounting Office between the hours of 9 a.m. and 4 p.m., on September 3rd and 4th; but they may be paid before the above dates. If paying in two instalments, the amount of the first instalment can be determined by adding fees and instalment fee, deducting deposit and dividing the result in half. An additional $2 is charged for payment after the specified dates. All late fees are payable in full with first instalment.

Students registering late pay their fees at the time of registration, failing which they become subject to the following provisions.

Immediately after the prescribed dates for the payment of fees, the Chief Accountant sends to the Dean of each Faculty a list of the registered students who have not paid their fees. The Deans thereupon suspend them from attendance at classes until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

Note: *Special fees* are given in the General Information Pamphlet included in the Announcement.

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INSTRUMENTS

With the exception of extracting instruments, lathes, and acrylizers, each student is required to furnish his own instruments and appliances for both laboratory and operating room, and is not permitted to enter the course until he is thus supplied.

The approximate cost of instruments and supplies for the First year, which includes an Anatomical Articulator, is $400.00.

Second year approximate cost	$300.00
Third year approximate cost	100.00
Fourth year approximate cost	75.00

All of these instruments and this equipment will be required for office use when the student enters practice and should be regarded as an investment for that purpose rather than a university expense.

Arrangements have been made with local dental supply houses in order that the student may benefit by a special trade discount.

MEDALS AND PRIZES

Montreal Dental Club Gold Medal, and a prize in books.—Awarded to the student in the final year who stands first in the science and practice of Dentistry. The standing is determined not only by the written and practical examinations at the end of the year, but by the general work of the student during the four years.

College of Dental Surgeons of the Province of Quebec.—The J. K. Carver Prize of twenty-five dollars awarded to the student, registered in this Province, obtaining the highest standing in the practical examinations of the final year.

Montreal Endodontia Society.—A book prize, awarded to the student in the final year showing the greatest aptitude in this subject.

American Academy of Dental Medicine (Montreal Section) Book Prize.—Awarded to the student in the final year obtaining the highest standing in Dental Medicine.

Canadian Dental Association War Memorial Scholarship Award.—First Prize $125.00; Second Prize $75.00. To be awarded annually.

This is an essay contest and is open to all undergraduates of the final year who have been in attendance for at least two years at any Canadian Dental School. The essay shall consist of not more than 4,000 words and not less than 2,500 words, excluding bibliography.

Correspondence relative to this Scholarship should be addressed to The Secretary, Canadian Dental Association, 234 St. George St., Toronto 5.

Lieutenant-Governor's Silver Medal, and a Prize in Books.—Awarded to the student in the final year who stands second in the class and whose standing is determined in a manner similar to that followed in the awarding of the Gold Medal.

Lieutenant-Governor's Bronze Medal, and a Prize in Books.—Awarded to the student obtaining the highest marks in written and practical subjects in the Third year examinations.

M. J. T. Dohan Pedodontic Prizes.—A prize awarded to the student in the Fourth year who achieves the highest standing in practical and clinical work during the year: a prize awarded to the student in Third year who receives the highest mark in the final written examinations.

International College of Dentists (Canadian Section) Scholarship.—This scholarship of $100 is awarded annually to a student who has completed the Third year and is entering the Fourth year. The award is based on scholastic record in the Third year, general character, and participation in extra-curricular activities. No application is required.

Montreal Dental Club Prizes.—The following prizes are given by the Montreal Dental Club: First, Second, and Third year prizes—A prize in money awarded to the student obtaining the highest standing in technique subjects: First year "Dental Anatomy"; Second year subject to be chosen each year; Third year "Orthodontic Technique".

Mount Royal Dental Society Prizes.—A prize in books awarded to the students obtaining the highest standing in the sessional examinations in First, Second and Third years.

Dorion Prizes.—The following prizes are given by Dr. Eugene S. Dorion: Second and Third years—a prize in money awarded to the student obtaining the highest standing for an Essay on Roentgenology.

Dr. I. K. Lowry Prizes.—Prizes of medical dictionaries are awarded to the two students in the First year who obtain the highest marks in Oral Histology and Embryology.

SCHOLARSHIPS, BURSARIES, AND LOANS

Details of University and other scholarships and bursaries are given in the Scholarships Announcement which may be obtained from the Registrar's Office.

The University has a small fund from which loans may be made to students of good academic standing. Loans are made only to students in the upper years. Applications for loans should, in the first place, be made to the Dean.

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COURSE FOR THE DEGREE OF D.D.S.

Candidates for the degree of D.D.S. must complete two years of study in a College or Faculty of Arts or Science, with English, Mathematics, Physics, Inorganic and Organic, Chemistry, and Biology as compulsory subjects, before entering upon the four-year course in this Faculty. The curriculum* is as follows:

FIRST YEAR

Anatomy, Human
Anatomy, Dental
Histology, General
Physiology
Biochemistry
Prosthetic Technique
Crown and Bridge Technique
Operative Technique
Orientation in Dentistry
Dental Materials

SECOND YEAR

Crown and Bridge Work
Operative Technique
Orthodontic Technique
Prosthetic Technique
Bacteriology
Metallurgy
Pharmacology (general)
General Pathology
Dental History
Radiography
Histology, Dental

THIRD YEAR

Crown and Bridge Work
Operative Dentistry
Orthodontics
Prosthetic Dentistry
Dental Radiography
Prosthetic Articulation
Dental Pharmacology and Therapeutics
General Anaesthesia
Oral Surgery and Local Anaesthesia
Oral Pathology
Health and Social Medicine
Pedodontics
Dental Jurisprudence

FOURTH YEAR

Orthodontics
Prosthetic Dentistry
Oral Surgery
Crown and Bridge Work
Pedodontics
Endodontia
Oral Diagnosis
Medicine
Periodontia and Oral Hygiene
Practice Management
Dental Ethics

*It should be understood that the programme and regulations regarding courses of study and examinations contained in this Announcement hold good for this session only, and that the Faculty, while fully sensible of its obligations towards the students, does not hold itself bound to adhere absolutely, for the whole four years of a student's course, to the conditions here laid down.

THESIS: Final year students must write a thesis of approximately 4,000 words. The subject will be announced early in September.

EXAMINATIONS

Frequent oral examinations are held to test the progress of the student, and occasional written examinations are given throughout the session.

A minimum of 60 per cent in each subject is required to pass, and 85 per cent for Honours.

All examinations in each year must be passed before a student is allowed to advance to the next.

Candidates who fail at the regular examinations in not more than three subjects of the First, Second, or Third years, may, at the discretion of the Faculty, be allowed to take the supplementary examinations before the beginning of the following session. These examinations are held during the week preceding the regular opening of the session.

Failure in more than three subjects of the First, Second, or Third years at the regular examination excludes the candidate from advancement.

Students who fail in one subject only of the final year may, at the discretion of the Faculty, be allowed a supplementary examination in that subject. Should the subject be one in which practical or clinical work is required, the student must furnish evidence of additional clinical attendance or laboratory work before presenting himself for examination.

A repeating student will be excused from those courses in which he has attained a mark of 70% or better. He will be required to repeat all lecture, laboratory and clinical periods in those courses in which he attained a mark of 69% or less. On re-examination in these latter courses, a passing grade of 65% must be attained.

Applications for supplemental examinations must be in the hands of the Dean at least three days before the date set for the beginning of the examination, and must be accompanied by a fee of $10.00 for each subject.

QUALIFICATIONS FOR THE DEGREE

1. No one is admitted to the degree of Doctor of Dental Surgery who has not attended lectures for a period of four sessions in the Dental Faculty of this University, or partly in this University and partly in some other approved university, college, or school of dentistry.

2. Students of other universities, so approved, who may be admitted on production of certificates to a like standing in this University, are required to pass an oral examination in primary subjects, and all examinations in the final subjects in the same manner as students of this University.

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No one is permitted to become a candidate for the degree who has not attended at least one full session at this University.

3. Candidates for the final examinations must furnish testimonials of attendance in the branches of dental education mentioned on page 1910; provided, however, that testimonials equivalent to, though not precisely the same as, these may be presented and accepted.

DENTAL INTERNESHIPS

There are a number of resident dental interneships in Montreal hospitals. These positions are filled annually on recommendation of the Faculty of Dentistry, selection being made from the graduating class.

COURSES OF LECTURES

ANAESTHESIA, GENERAL

Lecturer — Robert Ferguson

This course, given in the Third year, comprises a short series of lectures on the general principles and the physiology of anaesthesia, with special emphasis laid on the factors of safety and the suitability of the anaesthetic agent employed. An equal amount of time is spent in the main operating theatre where demonstrations are given of the use of all modern methods of general anaesthesia for dental and oral surgery under actual working conditions.

Textbook: A. E. Guedel, Inhalation Anaesthesia (Macmillan).

ANATOMY, GENERAL

Professors	C. P. Leblond, *Chairman*
	C. P. Martin
Associate Professors	S. M. Banfill
	J. Langman
Assistant Professor	Y. Clermont
Hon. Lecturer	E. W. Workman
Lecturers	B. E. Walker
	L. Heller
Lecturer to Dental Students	G. A. Brabant
Lecturer in Dental Histology	G. Douglas Armstrong
Demonstrator, Histology and Embryology	M. Blair
Demonstrator, Histology	H. Root
Teaching Fellow	W. R. Kent
Research Assistants	C. E. Hooper
	H. Isler
	H. Puchtler
	H. Vance

ANATOMY

1A. GROSS ANATOMY

This course covers the first two terms of the year, and is planned so that after making a general survey of the whole body, the dental student concentrates his attention on the head and neck. The course runs concurrently with the course in First year Medicine (Anatomy 1), and comprises five hours lectures and fifteen hours laboratory work a week during the Autumn and Winter terms.

Practical Manual: Le Gros, Clark, Practical Anatomy, 2nd ed.

Textbook: Gray, Anatomy (English edition); or Cunningham, Textbook of Anatomy.

MICROSCOPIC ANATOMY

1. HISTOLOGY AND EMBRYOLOGY

This course coincides for the main part with the Medical Microscopic Anatomy Course 5 but the reproductive organs are excluded and special lectures on dental histology and the embryology of the mouth are included.

The course finishes at the end of the Winter term.

Histology Textbook: Bailey, Text-book of Histology; or Maximow and Bloom, Histology; or Ham, Histology.

ANATOMY, DENTAL

Assistant Professor — T. I. GUILBOARD, *Chairman*
Lecturer — DAVID T. SHIZGAL
Demonstrator — H. R. LOUTTIT

This course is given to dental students of the First year. It consists of 28 lectures of one hour and 56 laboratory periods of two hours each.

The lecture course covers:

1. Introductory lectures on the development of the maxillary bones, development of teeth, nomenclature of the different constituents of teeth and surrounding tissues.

2. The anatomy of each individual tooth, deciduous and permanent.

3. Arrangement of teeth and occlusion.

4. Development of the maxillary apparatus from reptiles to man.

These lectures are illustrated by drawings, X rays, models, slides, and specimens.

The laboratory course consists of carving teeth from plaster of Paris blocks. Four teeth are carved three times normal size.

Fourteen teeth are carved normal size, then articulated on models. Natural teeth are sectioned and mounted to familiarize the student with

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the composition of the teeth, and the relationship of pulp canals and chambers. Drawings of teeth are made.

Textbooks: Dental Anatomy, M. Diamond.

References: Dental Anatomy, Zeisz & Nuckolls; Dental Anatomy and Physiology, Wheeler.

BACTERIOLOGY

Professor	R. W. Reed, *Chairman*
Associate Professors	G. G. Kalz
	J. W. Stevenson
Assistant Professors	Fritz Blank
	C. A. Butas
	Grace Girvin
	K. F. Girard
	C. D. Kelly
	A. M. Masson
Lecturers	J. A. de Vries
	E. Mankiewicz
	O. Morgante
	F. H. Prissick
	Raissa Silov

All lectures and laboratory courses are given in the Department of Bacteriology (Institute of Pathology).

ELEMENTARY DENTAL BACTERIOLOGY AND IMMUNITY

30 lectures and 60 hours practical work.—Available to students of Dentistry on the completion of their studies in Anatomy, Physiology, Histology, and Biological Chemistry.

A choice of the following books is recommended:

F. C. Kelly and K. E. Hite, Microbiology (Appleton Century Crofts); Jordan and Burrows, Textbook of Bacteriology (Saunders); Fairbrother, A Textbook of Medical Bacteriology (William Heinemann).

BIOCHEMISTRY

Professors	D. L. Thomson, *Chairman*
	J. H. Quastel
Associate Professors	O. F. Denstedt
	K. A. C. Elliott
	R. D. H. Heard

1. BIOCHEMISTRY—LECTURE COURSE

Two lectures weekly from October to April. Three weekly thereafter, in the First year.

This work is taken with the Medical students.

Texts: Mitchell, Textbook of Biochemistry (McGraw-Hill), or Harper, Review of Physiological Chemistry (Lange).

2. BIOCHEMISTRY—LABORATORY COURSE

A synopsis of the course is issued by the Department.

Six hours a week: October to February.

DIAGNOSIS, ORAL (*See*—Pathology)

ENDODONTICS

Assistant Professor	WILFRED J. JOHNSTON, *Chairman*
Associate Professor	A. GERALD RACEY
Assistant Professors	T. IVAN GUILBOARD
	ROGER E. MCMAHON
	WALLACE F. WALFORD
Lecturer in Medicine	GERALD W. HALPENNY
Lecturer in Radiology	E. S. DORION
Lecturers in Dentistry	A. D. RICHARDSON
	L. J. ROSEN
	CAMERON T. WALSH
Guest Lecturer	(chosen each year)

A course in root canal therapy correlated with the teachings of the Departments of Bacteriology, Pathology, Histology, and Dental Anatomy.

Two weeks in the senior year are devoted to a concentrated course of Theory and Clinical Practice of Endodontics. The basic principles of opening, cleansing, and filling root canals are dealt with in lectures and demonstrations. During this period each student is required to carry out the diagnosis, bacteriological examination, and treatment of the clinical cases that are provided. Where necessary, root resections and bleachings are performed. Throughout the senior year there is a weekly endodontic clinic to aid the students with those cases that they encounter during their general clinical work.

Textbooks: L. I. Grossman, Root Canal Therapy; Sommer, Ostrander and Crowley, Clinical Endodontics.

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HEALTH AND SOCIAL MEDICINE

Associate Professor C. W. MacMillan

Assistant Professor Marian A. Bain

A special course of twenty lectures on the relation of Dentistry to Public Health and Preventive Medicine, including an introduction to the organization and administration of public health programs in Canada, the principles of communicable disease control, nutrition, and the role of the environment in health and disease.

HISTOLOGY AND EMBRYOLOGY, ORAL

Lecturer G. Douglas Armstrong

Demonstrator Thomas J. Gavriloff

This course follows Histology 1. The didactic portion traces the development of the teeth and supporting structures. Following this, there is the study of the adult oral tissues throughout their life cycle, and their relationship to the various fields in Dentistry.

The laboratory portion of the course is devoted to microscopic study of prepared ground and decalcified sections of oral tissues. Demonstrations of dissections of embryonic and foetal material are made.

Text: Orban, Oral Histology and Embryology.
Reference Book: Noyes, Schour, and Noyes, Dental Histology and Embryology.

HISTORY AND ETHICS, DENTAL

Lecturer in History and in Ethics Johnston W. Abraham

HISTORY

This course is intended to give the student an intelligent conception of the evolution and development of dentistry from the primitive conditions and methods of the past to the present standing of the profession as a branch of the healing art. The relation of some of the outstanding men of the profession to this development will also be dealt with.

ETHICS

Under this heading the moral, social, and business relationships between the dentist and his patient will be discussed, as well as his duty to the public, his fellow practitioner, and himself.

JURISPRUDENCE, DENTAL

Lecturer ALEX. MCT. STALKER

A discussion of the laws governing the practice of dentistry, their necessity, and their purpose.

The responsibility of the dentist under the laws of the Province and his position as defendant in suits for damages and as plaintiff in suits for fees are fully explained.

MATERIALS, DENTAL

Lecturer DONALD W. HENRY

This course is given to First year students and is designed to be an introduction to the materials used in Dentistry. A short series of lecture-demonstration periods is given. Laboratory periods in co-operation with the technique courses of First year combine the study of chemical and physical properties of the materials with the techniques for handling them.

Methods of testing and assessing materials for dental use, processing and refining these products are discussed, and the requirements of ideal materials are outlined. Specifications for the materials as outlined by the American Dental Association and the U.S. Bureau of Standards are reviewed.

Textbook: E. W. Skinner, The Science of Dental Materials.

MEDICINE

Associate Professor of Medicine	DOUGLAS G. CAMERON, *Chairman*
Assistant Professor of Medicine	S. R. TOWNSEND
Clinical Assistant in Medicine, The Montreal Children's Hospital	DONALD HILLMAN
Assistant Professor of Paediatrics	E. M. WORDEN
Associate Professor of Medicine (Dermatology)	L. P. EREAUX
Demonstrator in Obstetrics and Gynecology	F. J. TWEEDIE

This course of 28 lectures is designed to familiarize the dental student with the principles of Medicine. Particular attention is paid to:

(1) The relationship of good prenatal care and proper nutrition during infancy and childhood to dentition and the subsequent health of teeth and gums.

(2) Oral manifestations of systemic disease and the importance of oral health in the successful treatment of certain medical conditions.

(3) Medical complications of dental surgery and their prophylaxis.

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METALLURGY

Associate Professor H. H. YATES

This course is given to Dental students of the Second year by the Metallurgical Department of the University, located in the Physical Sciences Centre.

It consists of fifteen lectures of one hour, and about ten laboratory periods of two hours, each.

The lecture course covers:

(1) Introductory lectures on the mechanical, physical and chemical properties of metals, especially in relation to their use in dentistry.

(2) The metallurgical principles of interest to the dentist are discussed, with particular emphasis on factors to be considered in the casting, working, alloying, and heat treatment of metals and alloys.

(3) The metals and alloys used in dentistry are considered in terms of the above principles. The properties of amalgams and gold alloys, both cast and wrought, are given special attention and the proper care of steel instruments is discussed in terms of the metallurgical behaviour of steels.

Textbook: E. C. Rollason, Metallurgy for Engineers (Edward Arnold).

Reference Books: F. L. Coonan, Principles of Physical Metallurgy; J. O. Lord, Alloy Systems; Carl A. Keyser, Basic Engineering Metallurgy; E. A. Smith, Dental Metallurgy; E. W. Skinner, The Science of Dental Materials.

The Laboratory course includes experimental work with the metals: gold, silver, copper, lead, zinc, tin, aluminum, nickel, iron, and steel.

The metals and some of their alloys are hammered, filed, cut, rolled, heat treated, and tested to determine their important mechanical properties. In some cases chemical properties are investigated briefly.

Pure gold and silver are prepared and dental and other amalgams are prepared and tested.

The course is given during the first term of each session by Professor Yates.

OFFICE PROCEDURE AND PRACTICE MANAGEMENT

Lecturer JOHNSTON W. ABRAHAM

This course consists of fifteen lectures given in the Fourth year. The purpose is to enable the undergraduate to understand the problems

encountered in the conduct of a successful dental practice. The lectures consider the dentist's personal preparation (mental, moral, and physical); his relation and obligation to the patient, to the public, and to the community; and finally, office location, office management, and records. Advice is offered on dental fee questions, accumulation of a competence, insurance, and investments.

OPERATIVE DENTISTRY

Associate Professor	DONALD C. GORDON, *Chairman*
Assistant Professor	FRANCIS L. BURNS
Lecturers	ROBERTA P. DUNDASS
	FRANK A. EDWARD

Demonstrators

E. R. AMBROSE	T. C. POSTANS
G. M. DUNDASS	HARRY ROSEN
W. R. F. DOHN	R. P. W. RYAN
G. K. HALE	WILLIAM D. SANDERS
MARCEL HÉBERT	J. E. VANVLIET
H. L. MUSSELS	JOHN VINCELLI
Z. B. NYESTE	

The purpose of this course is to instruct and train the student in the treatment of all diseases of, and injuries to, the hard tissues of the teeth and the restoration of the anatomy of the tooth in relation to function. Especial attention is given to children's dentistry with the aim that operative procedures will have for their object the inhibition of pathologic processes and the maintenance of normal occlusion.

Lectures and laboratory courses in the First and Second years include all the procedures of operative technique.

Lectures on theory in the Third year combined with practical experience at the Dental Clinic in the Third and Fourth years stress the co-ordination of Operative Dentistry with Dental Hygiene, Orthodontics, Periodontia, Endodontia and Prosthetic Dentistry to the end that the student will graduate with adequate knowledge and ability to treat patients of all ages and conditions of life.

Textbooks: G. V. Black, 2 Vols. (Medico-Dental Co., Chicago); McBride, Juvenile Dentistry (Blakiston); Gabel, American Textbook of Operative Dentistry (Lea & Febiger); McGehee, True, Inskipp (Blakiston).

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ORTHODONTICS

Professor	GERALD FRANKLIN, *Chairman*
Associate Professor	M. L. DONIGAN
Lecturer	ALBERT J. COLLE
Demonstrator	WALTER SWISTON

This course is designed to give the student a knowledge of normal occlusion and of the basic principles underlying the development of malocclusion, its prevention and treatment. It includes lectures, training in technics, and clinical treatment of patients. Emphasis is placed on orthodontics as an integral part of dentistry and its relation to other branches of general practice. The practical training serves to develop digital skill and to give the student some experience in movement of teeth.

The course extends over the Second, Third, and Fourth years. Its study commences in the First year with the basic sciences including histology and embryology which cover the development, growth, and eruption of the teeth.

SECOND YEAR

In this year the course is devoted to technique. Exercises in wire bending and in freehand soldering are carried out. In addition, each student is required to take upper and lower impressions of a fellow student and to trim the casts according to standard technique.

THIRD YEAR

In this year the course includes appliance technique and lectures. For review, the taking of impressions and the trimming of casts are repeated. Advanced exercises in freehand soldering are completed. This is followed by construction of bands with attachments, labial appliance, space maintainer, guide plane, and bite-plate on typodonts. The lectures cover terminology, normal occlusion and its development, and classification of malocclusion and anchorage.

FOURTH YEAR

In the final year a full course of lectures is given and treatment of patients is carried out by the students.

The lectures cover growth and development, etiology, diagnosis, principles of treatment, and prevention and interception of malocclusion. Pertinent histology and physiology of bone is reviewed with special emphasis on tissue changes incident to tooth movement. The relationship of orthodontics to the practice of general dentistry and children's dentistry is continually indicated.

In the orthodontic clinic patients with simpler malocclusions are assigned to the students. Appliances are designed by the staff and constructed of precious metals by the student who then carries out the treatment under strict supervision. In addition to being responsible for the patient assigned to him, each student is required to observe all the cases being treated in the clinic.

Textbooks: Anderson, Practical Orthodontics, 8th edition (C. V. Mosby); Salzmann, Principles of Orthodontics, 2nd edition (J. B. Lippincott); Brash, Aetiology of Irregularity and Malocclusion of the Teeth; Angle, Malocclusion of the Teeth; McCoy, Sheperd, Applied Orthodontics (Lea and Febiger) 7th edition.

PATHOLOGY, GENERAL

Professor	————————, *Chairman*
Associate Professors	G. C. McMillan
	Douglas Waugh
Assistant Professor	A. C. Ritchie
Lecturers	D. S. Kahn
	Sean Moore
Teaching Fellow	A. Bastrache

1. COURSE IN GENERAL PATHOLOGY

A. Two lectures per week (with epidiascopic and microscopic demonstrations) during the 2nd, 3rd, and 4th terms. (48 lectures.)

Drs. Kahn, Moore and Ritchie

B. Two practical laboratory classes per week during the 3rd and 4th terms. (80 hours practical work.)

Drs. Bastrache, Kahn, Moore and Ritchie

Textbooks: Boyd, Text-book of Pathology (Lea & Febiger). Wright, Introduction to Pathology (Longmans Green).

PATHOLOGY AND DIAGNOSIS, ORAL

Associate Professor	A. Gerald Racey, *Chairman*
Lecturers	Ralph S. Edmison
	Lesley A. Gill
	John McCarthy

This course is designed to teach the recognition of lesions of the oral cavity and the underlying pathological involvement. The course extends throughout the junior and final years.

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In the junior year it includes the study of the developmental defects and malformations of the teeth. Special consideration is given to the study of the etiology, diagnosis, and pathology of dental caries; diseases of the dental pulp; periapical diseases; peridontal diseases; odontogenic cysts; and tumours which commonly occur in the oral cavity. A study is also made of the oral manifestations of certain of the infective granulomata, as well as vitamin deficiencies and endocrine disturbances.

A laboratory course of three hours a week for five weeks is given during the last part of the junior year, where a study is made of the microscopic aspects of these lesions.

In the final year the course consists of a consideration of the signs and symptoms of disease of the hard structures of the teeth, the dental pulp, the peridental membrane and the periapical tissues by means of roentgenographic examination and interpretation and clinical diagnostic tests. A study is also made of the signs and symptoms of disorders of the oral mucous membrane. Treatment planning in conjunction with the other dental teaching departments is given careful consideration.

The course extends over the entire year and is composed of lectures and practical instructions.

Text Books: Thoma, Oral Pathology; Thoma, Oral and Dental Diagnosis; Kronfeld, Histopathology of the Teeth and Their Surrounding Structures; Miller, Oral Diagnosis and Treatment; Burket, Oral Medicine.

PEDODONTICS

Lecturer — ROBERTA DUNDASS, *Chairman*
Demonstrators — ROLAND NADEAU; ALBERT J. SCHUTZ

A course introducing child management, treatment planning, and operative procedures, presented to the Third year. Clinical instruction is conducted throughout the Fourth year.

PERIODONTOLOGY

Assistant Professor — WALLACE F. WALFORD, *Chairman*
Lecturers — PHILIP J. GITNICK; ROBERT F. HARVEY; J. DOUGLAS STEWART
Demonstrator — H. J. SMART

The course, given to the junior and senior years, is designed to give the student a knowledge of the basic principles of oral prophylaxis, diagnosis, and the treatment of periodontal lesions.

The instruction given to the junior year consists of demonstrations of clinical prophylaxis followed by seminars on clinical cases. Laboratory instruction in equilibration on models of clinical cases is featured during the junior year.

In the final year the course consists of thirty lectures and sixty clinical periods. Immediately following the lecture on any phase of treatment, a clinical period is devoted to application of the subject matter covered in the lecture.

The class is divided into small groups for clinical demonstrations both in the laboratory and upon patients. Each student thus has an opportunity to view, and to ask questions to an extent not possible with larger groups. Each student has an opportunity to carry out this instruction by treatments, under supervision, of patients in the University Dental Clinic at the Montreal General Hospital.

The clinical outpatient department provides an adequate supply of teaching material of representative periodontal lesions and this is further supplemented by patients referred to the department by local practising dentists.

Textbooks: Glickman, Periodontology; Goldman, Periodontal Therapy.

PHARMACOLOGY, GENERAL

Professor — K. I. MELVILLE, *Chairman*
Assistant Professors — B. G. BENFEY
L. E. HOKIN

A course of twelve lectures concerned with those phases of pharmacology which are of importance in dentistry, supplemented by six laboratory periods.

Textbooks: Clark, Krantz and Carr, Goodman and Gilman, or Drill.

PHARMACOLOGY AND THERAPEUTICS, DENTAL

Assistant Professor — WILFRED J JOHNSTON, *Chairman*
Lecturer — LYMAN E. FRANCIS

A course for Third year students intended to provide a study of those drugs not covered in the General Pharmacology course which are of particular interest in the treatment of pathological conditions of the oral cavity.

Textbooks: Prinz, Rickert, and Dobbs, Dental Materia Medica and Therapeutics, Accepted Dental Remedies.

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PROSTHETIC DENTISTRY

Professor	W. C. Bushell, *Chairman*
Associate Professors	James McCutcheon
	M. A. Rogers
Assistant Professors	W. Howard Boyles
	R. E. Dagg
	D. Kepron
	P. R. Marchand
Lecturers	A. F. Cameron
	Roland T. Lamb
	W. G. Stockwell

Demonstrators

J. M. Chamard	L. E. Kent
C. H. Dundass	H. L. Mussels
J. T. Elo	A. E. Pye
Joseph Fineberg	D. Bruce Ward
F. O. Frederick	

This course covers the teaching of mouth reconstruction in its fullest sense. It includes the examination, diagnosis, and treatment of cases, the preparation of the mouth and teeth, impressions, the technique of constructing various types of crowns, fixed and removable partial dentures, full dentures, and the construction of appliances for the treatment of cleft palate cases.

For convenience in teaching, the course is divided into four parts, namely: Full Dentures, Removable Partial Dentures, Fixed Partial Dentures, Ceramics. The course extends throughout the four years. During the first two years students are given a thorough training in the various techniques on models, etc. The final two years are clinical years and are devoted to lectures at the University and practical work at the Montreal General Hospital. During these years students are required to complete a certain number of the various restorations in the mouths of patients under the supervision of demonstrators.

Textbooks: Edward Kennedy, Partial Dentures (Dental Items of Interest); F. G. Neurohr, Partial Dentures (Lea & Febiger); Schlosser, Complete Denture Prosthesis (Saunders); Gillet and Irving, Inlays by the Indirect System (Dental Items of Interest); Schwartz, Cavity Preparation (Dental Items of Interest); Le Gro, Ceramics in Dentistry (Dental Items of Interest); Felcher, Art of Porcelain in Dentistry; Stanley D. Tylman, Crown and Bridge Prostnesis; Swenson, Complete Dentures (Mosby); Anthony, American Textbook of Prosthetic Dentistry (Lea & Febiger); Schweitzer, Restorative Dentistry (Mosby); Schwartz, Modern Method of Tooth Replacement (Dental Items of Interest); O. C. Applegate, Essentials of Removable Partial Denture Prosthesis (W. B. Saunders).

PHYSIOLOGY

Joseph Morley Drake Professor
F. C. MacIntosh, *Chairman*

Professor — A. S. V. Burgen

Associate Professors — B. Delisle Burns
Humberto Garcia-Arocha

Assistant Professors — Simon Dworkin
Paul Sekelj
Kathleen G. Terroux

Lecturers — A. L. Johnson
G. C. Salmoiraghi
P. B. Stewart

The purpose of this course is to give the student an elementary knowledge of the whole subject of physiology with a more special knowledge of such aspects as bear particularly on the practice of dentistry.

The course consists of three lectures a week from October to May, and fifteen laboratory periods of three hours each.

Textbooks: Best and Taylor, Physiological Basis of Medical Practice; Langley and Cheraskin, Physiological Foundations of Dental Practice; Best and Taylor, The Living Body.

RADIOLOGY

Lecturer in Dentistry — E. S. Dorion, *Chairman*

Demonstrator — Erwin C. Burbank

This course is commenced at the end of the Second year. The student is very definitely warned at the outset of the dangers of over-exposure to radiation and how to avoid it. Emphasis is placed on developing, fixing, and reducing techniques in conjunction with the taking of bite-wing radiographs. The course is related as much as is possible to the Operative Technique course just completed.

During the Third year, the taking and practical application of the full mouth survey on patients in the clinic is emphasized. The student is kept ever mindful of the important relation of this survey to all the departments of dentistry. The course includes practical demonstrations

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and lectures with slides covering dark room procedure, anatomical landmarks, and interpretation. Students take full mouth surveys of each other and are requested to take any necessary steps to correct defects in their dental condition. Lectures are also given on the medical aspects of X-ray examination.

Fourth year students are given every opportunity to improve their knowledge and radiographic technique in the study of pathological changes and treatment. During this final year, interpretation is stressed in cooperation with the department of Oral Diagnosis.

Textbooks: Ennis, Dental Roentgenology; McCall and Wold, Clinical and Dental Roentgenology; Simpson, Advanced Radiodontic Interpretation.

SURGERY, ORAL

Professor	JOHN W. GERRIE, *Chairman*
Associate Professor of Oral Pathology	A. GERALD RACEY
Assistant Professor in Charge of Exodontia	ROGER E. MCMAHON
Assistant Professor	S. J. MARTIN
Lecturers in Exodontia	JOHN MCCARTHY
	ROBERT M. WEINER
Lecturer in Anaesthesia	M. A. ROGERS
Demonstrators	GEORGE BRABANT
	LOUIS EPSTEIN
	E. H. JONES
	RODNEY A. LEFEBVRE
	DAVID MUNRO
	D. H. MUHLSTOCK

The course, given during the junior and final years, is designed to make the student proficient in the arts of local anaesthesia and exodontia and to familiarize him with the principles of general surgery and the details of oral surgery including surgical treatment of malignant disease.

Although work in the department is largely clinical, forty-five lectures are given to provide a didactic groundwork. The Dental Clinic, established in the Montreal General Hospital almost 30 years ago, treats over twenty

thousand patients yearly and also supplies the necessary dental treatment for patients resident in the hospital. The patients in the medical and surgical services, both indoor and out-patients, are available for teaching. In addition, students attend in groups at the Tumour Clinic where a large series of malignant conditions is demonstrated. Clinical lectures are given in the operating theatres, and ward rounds are conducted in the wards where mouth conditions of interest to dental students are shown.

The larger part of the lecture work is given before Christmas in the junior year. The introductory work in local anaesthesia is completed and an examination held. The student is then introduced to the Exodontia Clinic at the Hospital. Here he is given demonstrations and is required to follow the exodontia practice of the senior students.

The senior year is primarily clinical. In it the didactic work of the Third year is enlarged upon. Students practice in the exodontia clinic daily under the direction of members of the staff and are assisted after Christmas by a junior student. The class attends Oral Surgery Clinics and ward rounds once a week when histories are taken and patients examined. Oral Surgery clinics are held twice weekly at which the more advanced mouth procedures are carried out. Attendance at these is not compulsory but interesting cases are demonstrated.

Text and Reference Books: Blair and Ivy, Essentials of Oral Surgery; Thoma, Oral Surgery, Volumes 1 and 2; Archer, Oral Surgery; Berger, Principles and Technique of the Removal of Teeth; Ivy and Curtis, Fractures of the Jaws; Winter, Operative Oral Surgery; Nevin and Puterbaugh, Conduction, Infiltration and General Anaesthesia in Dentistry; Parker, Traumatic Injuries of the Face and Jaws; Padgett, Surgical Diseases of the Mouth and Jaws; Thoma, Clinical Pathology of the Jaws; Burket, Oral Medicine; Fry, Shepperd, McLeod and Parfitt, Dental Treatment of Maxilla and Facial Injuries.

CLINICAL FACILITIES

Associate Professor of Clinical Dentistry M. A. ROGERS

The McGill University Dental Clinic is an integral part of the Out-Patient Department of the Montreal General Hospital. The Clinic, newly equipped and occupied on completion of the building in 1955, overlooks the City of Montreal from the slope of Mount Royal. Here, under the guidance of the Clinical Director and his associates in what we believe to be one of the best equipped undergraduate dental teaching clinics in America, students are taught to carry out all phases of Clinical Dentistry and related laboratory procedures.

The Third and Fourth year students attend this Clinic daily except for such time as may be taken up by lectures or other University work.

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Students entering the Third year must spend the period between the last of the regular May examinations and the end of June in the Clinic.

An abundance of teaching material in all aspects of Dentistry is always available. Integration with the Montreal General Hospital offers the facilities of all departments in that Hospital and allows the students to observe a wide variety of interesting and unusual cases under treatment.

A registered nurse and two resident internes are in attendance at all times.

General anaesthetics are administered in the dental surgery by the Department of Anaesthesiology of the Hospital.

LIBRARY

The Medical Library, which contains all the standard textbooks in the branches of the first two years in Dentistry, has a section dealing exclusively with dental subjects. Standard textbooks and a large number of reference books are in the Dental Section of the Medical Library. Subscriptions are maintained to the major dental periodicals. During the session, students may consult any work of reference in the Library between 9 a.m. and 6 p.m., 7 p.m. and 10 p.m., Saturdays 9 a.m. and 6 p.m.

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Faculty of Law

McGill University

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Faculty of Law

Chancellor Day Hall

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

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Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

Faculty of Law

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

W. C. J. Meredith, Q.C., M.A., D.C.L. — *Dean of the Faculty of Law*

William Bentley, C.G.A., F.C.I.S., R.I.A. — *Bursar*

G. A. Grimson, B.Com. — *Comptroller*

T. H. Matthews, M.A., LL.D. — *Registrar*

Jean Gabriel Castel, B.S., LL.B., LL.M., Lic. en Droit, Dipl. Inst. Droit Comp. of Paris — *Secretary of the Faculty of Law*

Mrs. Phyllis O'Neill — *Assistant-Secretary of the Faculty of Law*

A complete list of the teaching staff of the University, including the Faculty of Law, is printed as a separate announcement which may be obtained from the Registrar's Office.

FACULTY OF LAW OFFICE

CHANCELLOR DAY HALL

3644 Peel Street

Montreal 2

Telephone — MA 9181

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GENERAL INFORMATION

COURSE OF STUDY

The Faculty offers a three year course leading to the degree of B.C.L. Students proceeding to the legal and notarial professions are required to take an additional year of practical training and to pass further examinations. The degree course provides a liberal education in legal principles and theory, and prepares students for the legal and notarial professions, as well as for public service and business. In the field of private law, the curriculum is based on the Civil Law system and in particular on the Quebec Civil Code; in the field of public law, stress is laid on Constitutional, International, and Administrative law, and on the new institutions and procedures resulting from the increased role of government in the modern state. The courses given in every case require at least two hours of directed study for every hour of lecture. In addition essays are required in the First and Second years, and a thesis or equivalent additional work in the Third year.

ADMISSION*

Students who have successfully completed two years in the Faculty of Arts and Science at McGill University will be eligible for admission to the Faculty of Law. Other candidates for admission will have to satisfy the Faculty that they have attained an equivalent educational standard, and are intellectually qualified to pursue with advantage the study of law.

Students whose right to enter the Third year of the Arts and Science Faculty is conditional upon their passing supplemental examinations are not eligible for admission to the Faculty of Law.

Women are admitted to the Faculty on the same terms as men, and are eligible for the degree.

The Faculty may admit a limited number of suitable persons to attend selected courses of lectures without matriculation in a University. Such permission will only be granted to applicants who satisfy the Faculty of their capacity to undertake with advantage the study of law. They will not be allowed to proceed to a degree, but will be entitled to receive a certificate specifying the course of study which they have successfully pursued and the class which they have obtained in the examination.

Candidates for admission are required to interview the Dean or the Secretary of the Faculty and to obtain permission to register. In all cases admission is at the discretion of the Faculty.

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*For students proceeding to the Bar and the notarial profession, see page 2013.

FRENCH

The attention of students is directed to the necessity of being able to read French easily, since many of the works to which they will be referred are written in that language. Reasonable fluency in spoken French is recommended for those who intend to practise in the Courts of this Province.

REGISTRATION

All students must register in person at the office of the University Registrar on Tuesday or Wednesday, September 24th or 25th.

Students registering later than the prescribed dates will be required to pay a late registration fee of $5 during the first week of the session and $10 during the second. This will not be refunded, except by special permission of the Faculty.

Students must bring with them at the time of registration the evidence necessary to show that they are entitled to admission into the Faculty, if this has not already been furnished. A written acceptance by the Faculty of Law must be presented to the Registrar.

FEES

The regular fees and special fees are given in the General Information Pamphlet included with this Announcement.

DATES FOR PAYMENT

Fees are due and payable at the Accounting Office on Tuesday or Wednesday, September 24th or 25th, but they may be paid before these dates. The second instalment is due and payable on January 15th. An additional $2 is charged for payment after the specified dates. An instalment fee of $5 is charged when fees are paid in two instalments.

Students registering late must pay their fees when they register, failing which they become subject to the provisions of the above paragraph.

Immediately after the prescribed dates for the payment of fees a list of the registered students who have not paid their fees is sent to the Dean of the Faculty, who removes their names from the register of attendance. Such students are not readmitted to any class until advice has been received from the Chief Accountant that the fees have been paid.

PRIZES, SCHOLARSHIPS, AND MEDALS

The *Elizabeth Torrance Gold Medal*, founded in 1864 by Professor John Torrance in memory of his wife, is awarded to the student who obtains the highest marks in the Final Examination.

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The *Montreal Bar Association* offers a prize of $50 to the student who obtains the highest standing in Civil Law, and the Junior Bar Association a prize of $15 to the student who obtains the best marks in Civil Procedure in the final year.

The *Alexander Morris Exhibition*, of the value of $50, founded in memory of the late Hon. Alexander Morris, M.A., D.C.L., of Toronto, will be awarded to the student who obtains the highest standing in the Second year.

The *Chief Justice Robert Alfred Ernest Greenshields Prize in Criminal Law*, founded in 1943 by Mrs. Greenshields in memory of her husband, the late Chief Justice Greenshields, D.C.L., LL.D., for many years Professor of Criminal Law and Dean of the Faculty of Law. The prize will be awarded to the member of the graduating class having the highest standing in Criminal Law throughout the college course.

John E. Crankshaw Prize, established by friends of the late John E. Crankshaw, Q.C., formerly lecturer in Criminal Law at McGill University. The prize consists of an Advocate's Gown, a copy of the Annotated Criminal Code, and, revenue permitting, the year's Bar Fee. It is to be awarded to the student who has obtained the highest standing in Criminal Law subjects at McGill University and has passed his final examination for admission to the Bar of the Province of Quebec.

The *Adolphe Mailhiot Prize*, established by Mr. and Mrs. J. N. Mailhiot of Victoriaville, P.Q., in 1927, consists of a prize of law books to be given annually to a student selected by the Faculty.

The *Macdonald Travelling Scholarship* was founded by the will of the late Sir William Macdonald "for the purpose of enabling English-speaking Law students to take a course of studies in France," the testator "deeming it of great importance that the English-speaking members of the legal profession should be proficient in the French language." The value of the scholarship is approximately $1,000. The scholar elected is required to pursue a year's study in the Law Faculty of a French University approved, in each case, by the Faculty. The award is made at the discretion of the Faculty to a student of the graduating class proceeding to the Bar, who has obtained first or second class honours in the final examination, and who would be unable without such financial help to spend a year in France. The Faculty interprets the will of the late Sir William Macdonald as intending that the Scholarship be awarded only to students preparing for practice as advocates in the Province of Quebec. Under the present regulations the Scholarship must be used in the year in which it is awarded.

The *Edwin Botsford Busteed Scholarship* was founded by the will of the late Mrs. Busteed in memory of her husband, Edwin Botsford Busteed, K.C., B.A., B.C.L., and will be awarded to an applicant, chosen by the Faculty, who desires to carry out graduate research on some

subject connected with the law of Quebec and approved by the Faculty. The value of the scholarship is approximately $240.

The *Thomas Alexander Rowat Scholarship* was founded by Mr. Donald McKenzie Rowat, N.P., in memory of his brother, Lieutenant Thomas Alexander Rowat, B.C.L., who was killed in action at Lens, France, on the 28th June, 1917. The value of the scholarship is approximately $125. It is awarded in alternate years for proficiency in the French language and in the old French law.

The *Charles Albert Nutting Prize* was founded in 1930 by Miss Adelaide Nutting, M.A., R.N., in memory of her brother, Charles Albert Nutting, Q.C., B.C.L., who graduated from this Faculty in 1872. The value of the prize is approximately $70. It is awarded to the student in the First or Second year submitting the best essay on a topic related to legal history, the topic to be fixed in advance by the Faculty.

The *I.M.E. Prize in Commercial Law* was established by Mr. George S. McFadden Q.C. and consists of $70 in law books awarded annually to the member of the graduating class having the highest standing in Commercial Law throughout the course.

The *Carswell Company Prizes*, consisting of two sets of books valued at $30 each, are awarded to first or second year students at the discretion of the Faculty. These prizes were established in 1948 by the Carswell Company of Toronto.

The *Reading Society Prize*, established in 1952 by the Reading Society of Montreal, consists of $50 to be awarded annually to the student who obtains the highest standing in the First year.

The *Chief Justice R. A. E. Greenshields Memorial Scholarships* were founded by the will of the late Mrs. R. A. E. Greenshields in memory of her husband, the late Chief Justice Greenshields, D.C.L., LL.D., for many years professor of Criminal Law and Dean of the Faculty of Law. Two scholarships of the value of $400 each are awarded annually to students entering the Faculty of Law and are renewable in each of the two upper years leading to the Bachelor of Civil Law degree, provided that the student's conduct is satisfactory and that he maintains at least a high Second Class standing, or in the opinion of the Faculty is for other reasons entitled to its renewal. Candidates must satisfy the regular requirements for admission to the Faculty, must have earned a scholastic standing of at least high Second Class, and preferably First Class at the University or Institution which they previously attended, and must furnish evidence of the necessity of financial assistance in order to be able to take up the study of law. Although fluency in both English and French is not essential, preference will normally be given to an applicant who has a good working knowledge of both languages.

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The *I. Ballon Memorial Medal* was established in 1955 by Mrs. I. Ballon in memory of her husband, the late Isidore Ballon, B.A. 1907, B.C.L. 1908, and is awarded annually to the student obtaining the highest standing in the Fourth year university examinations.

The *H. E. Herschorn Prize* consists of $100 to be given annually by Mr. H. E. Herschorn, N.P., B.A. 1911, B.C.L. 1914, and awarded to the highest ranking student of the graduating class who intends to enter the Notarial profession.

The *Alexander Scholarship*, consisting of $45 was established in 1950 under the will of the late Maurice Alexander, C.M.G., K.C., of London, England, as a token of esteem for the late Sir Charles Peers Davidson, former Professor of Criminal Law at McGill University. It is awarded annually to a student selected by the Faculty.

The *Faculty Essay Prizes* consist of two prizes of $25.00 each and are awarded annually to the students writing the best essays in the Third year.

The *A. Fleming Loan Fund* was established in 1954 by Mr. A. Fleming to aid students in the Faculty of Law. Application should be made to the Dean.

Students in the Faculty are eligible for *University Scholarships*. For particulars see the Scholarships Announcement.

No medals, prizes, or scholarships will be awarded, if in the opinion of the Faculty there is no candidate of sufficient merit.

SCHOLARSHIPS ANNOUNCEMENT

A complete list of scholarships and bursaries and the regulations governing the various loan funds are given in the Announcement of Scholarships, Bursaries, and Loan Funds which may be obtained from the Registrar's Office.

DEGREES

B.C.L.

The degree granted in the Faculty is that of Bachelor of Civil Law. The course covers three years.

M.C.L.

The degree of Master of Civil Law is granted under the authority of the Faculty of Graduate Studies and Research for advanced study in law. The candidate must have the degree of B.C.L. from McGill or its equivalent, and must have obtained at least second class honours in the subject which he proposes to study and in the course as a whole. He must

spend at least one year in resident study and present a thesis on some topic connected with his subject. The complete regulations governing this degree are given in the Announcement of the Faculty of Graduate Studies and Research.

LL.M.

The degree of Master of Laws is granted under the authority of the Faculty of Graduate Studies and Research for studies in the field of International Air Law. The requirements for this degree are summarized on page 2014 of this Announcement.

LIBRARY

The Law Library of the University at present contains over 30,000 volumes, and is located in Chancellor Day Hall. The principal law reports of Canada, the United Kingdom, and France are included, as well as a selection of reports from the United States and elsewhere.

Books will be loaned by the library, but fines are assessed for books overdue.

The Redpath Library, the general University library, is also available for the use of Law students.

EXAMINATIONS

*Examinations will be held:

(a) At the end of the First year, covering the year's work.

(b) At the end of the Second year, covering the Second year's work.

(c) At the end of the Third year, on the work of the Third year.

Special tests may be required by the Faculty at any time.

At all examinations in the Faculty students are at liberty to write their answers either in English or in French.

CLASSIFICATION OF MARKS

Class I	80–100%
Class II	70– 79%
Class III	50– 69%

In order to pass a student must have an overall average of 60%.

*These requirements are subject to alteration by the Faculty, of which notice will be given.

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SPECIAL EXAMINATIONS

(a) Students are not allowed the privilege of writing supplemental examinations. Special examinations may be set in the event of illness at the time of examination and in analogous cases.

(b) All applications for special examinations must be made to the Dean in writing and must reach his office before July 1st.

(c) The prescribed fees must accompany the written application and are payable to McGill University. Fees for special examinations will be ten dollars for each paper, with a maximum charge of fifty dollars. If the Third year essay is not accepted, in addition to the foregoing, a charge of $10 for reading the revised essay will be made.

(d) Students will only be permitted to repeat a year at the discretion of the Faculty.

GRADUATING ESSAY AND OPTIONS

In addition to passing examinations, students must submit, not later than the 10th of January of their Third year, an essay of not less than ten thousand words on a subject set by the Faculty. They must also take one of the seminars offered to Third year and graduate students.*

CURRICULUM**

FIRST YEAR

ROMAN LAW

Three hours throughout the session. *Dr. J. G. Gazdik*

CIVIL LAW

(a) Introduction to Civil Law.

(b) Persons and Property.

Three hours throughout the session.

(c) General theory of Obligations.

Two hours, one term. *Professor Louis Baudouin*

CRIMINAL LAW

Two hours throughout the session. *Professor C. S. LeMesurier*
Mr. Joseph Cohen, Q.C.

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*McGill Law Journal editors are exempt from this requirement.

**This curriculum is based on the requirements laid down by the Bar of the Province of Quebec, and is subject to revision without notice.

LEGAL HISTORY

One hour throughout the session. *Professor J. G. Castel*

CONSTITUTIONAL LAW

Two hours, one term.
One hour, the other term. *Professor F. R. Scott*

LEGAL METHOD

One hour throughout the session. *Professor Maxwell Cohen*

CIVIL PROCEDURE I

Two hours, one term. *Mr. James A. Soden*

INTRODUCTION TO THE LAW OF EVIDENCE

One hour, one term. *Dean W. C. J. Meredith, Q.C.*

SECOND YEAR

CIVIL LAW

(a) Contracts, Quasi-Contracts, Offences, Quasi-Offences.
Three hours throughout the session. *Professor J. G. Castel*

(b) Sale, Lease and Hire, Mandate, Partnership, and Minor Contracts.
Two hours, one term. *Professor G. E. LeDain*

CIVIL PROCEDURE II

Two hours, one term. *Mr. Justice G. S. Challies*

COMMERCIAL LAW

Including Negotiable Instruments, Banking, Carriers and Insurance.
Four hours throughout the session. *Professor G. E. LeDain*

CONSTITUTIONAL LAW

Two hours throughout the session. *Professor F. R. Scott*

CRIMINAL PROCEDURE AND EVIDENCE

Two hours, one term.
One hour, the other term. *Mr. Joseph Cohen, Q.C.*

INTERNATIONAL LAW

Two hours throughout the session. *Professor Maxwell Cohen*

THIRD YEAR

CIVIL LAW

(a) Privileges, Hypothecs, Registration, and Prescription.
Two hours, one term. *Professor G. E. LeDain*

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(b) Marriage Covenants, Successions, Gifts, Wills, Substitutions, and Trusts.

Two hours throughout the session. *Professor Louis Baudouin*

COMPANY LAW

One hour throughout the session. *Mr. P. F. Vineberg*

CIVIL PROCEDURE III

Two hours throughout the session. *Dean W. C. J. Meredith, Q.C.*

PRIVATE INTERNATIONAL LAW

Two hours throughout the session. *Professor J. G. Castel*

JURISPRUDENCE

Two hours throughout the session. *Professor Maxwell Cohen*

ADMINISTRATIVE LAW (Including Municipal, School, and Parish Law)

Two hours throughout the session. *Professor F. R. Scott*

INDUSTRIAL LAW

One hour throughout the session. *Mr. Marc Lapointe*

TAXATION

One hour throughout the session. *Mr. A. L. Bissonette*

EVIDENCE

One hour, one term. *Mr. Justice G. R. W. Owen*

MARITIME LAW

One hour, one term. *Mr. Justice G. R. W. Owen*

BANKRUPTCY

One hour throughout the session. *Mr. W. J. McQuillan*

THIRD YEAR AND GRADUATE SEMINARS

COMPARATIVE LAW

Two hours throughout the session. *Professors Baudouin and Castel*

BASIC PROBLEMS IN CANADIAN CONSTITUTIONAL LAW

Two hours throughout the session. *Professor F. R. Scott*

THE LAW AND CONSTITUTION OF INTERNATIONAL ORGANIZATIONS

Two hours throughout the session. *Professor Maxwell Cohen*

LEGAL PROBLEMS IN GOVERNMENT CONTROL OF BUSINESS

Two hours throughout the session. *Professor Maxwell Cohen*

FOURTH YEAR

Although students may be granted the degree of B.C.L. at the end of their Third year, those who are candidates for admission to the Bar and to the Notarial profession of Quebec are now required to take a fourth year.

The Fourth year for students proceeding to the Bar is directed by the Dean. The course consists of practical instruction in the following subjects:

(a) Lectures and seminar instruction in drafting of legal documents and opinions, and practical instruction in Civil Law, Civil Procedure, Criminal Law and Procedure, Parliamentary Procedure, Company Law, Accountancy, Municipal Law, Taxation Law, and Legal Ethics and Professional Organization. Practical instruction in these subjects is given by the Dean and by twenty-seven practitioners.

(b) Trial Technique in Civil and Criminal Matters.

(c) Practical training in selected law offices or in Judges' Chambers.

The Fourth year for students proceeding to the Notarial profession is directed by Mr. H. E. Herschorn, N.P., O.B.E. The course includes practical instruction in the following subjects *inter alia:*

(a) Sales; Problems of Insurance; Marriage Contracts; Hypothecs; Trust Deeds; Servitudes; Leases; Authentic Deeds; Title Search; Procedure in connection with winding up of Estates; Succession Duties; Loans and Privileges; Acquittances, Discharges, Main-Levees; Powers of Attorney; Wills and Codicils; Accountancy; Registration of Deeds, Privileges and Liens; Municipal Law; Company Law; Professional Ethics.

(b) Practical training in selected Notarial offices.

ADMISSION TO THE LEGAL PROFESSION IN QUEBEC

Candidates proceeding to the Quebec Bar must be Canadian citizens and hold the degree of B.A. from a Canadian university or a university or college of which the degree is recognized jointly by Laval, McGill, Montreal, Ottawa and Sherbrooke Universities, and in addition by the Bar. They must also satisfy the Bar Examiners that they have successfully completed "the regular course in philosophy" in an approved university. The philosophy course may, with permission from the Faculty, be taken concurrently with the law course.

Candidates for admission to the Notarial profession in Quebec must be Canadian citizens and hold the degree of B.A. from Laval, McGill, Montreal or Ottawa Universities, or another university or college of

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which the diploma is recognized as equivalent by one of them, for the admission to its law course. They are required to have studied Latin and Philosophy.

In addition to the university fees for the law course, candidates are required to pay special fees for admission to the Bar or the Notarial profession.

In view of periodic amendments to the Notarial and Bar Acts, candidates are warned that they should not rely on the brief summary of requirements contained in this Accouncement but should consult the following representatives of the Bar and Notarial profession before admission to the Faculty. Information regarding admission to the Bar may be obtained by applying to Mr. Charles Coderre, Q.C., Room 608, Montreal Tramways Building, 159 Craig Street West, Montreal, or by consulting the Bar Act of the Province of Quebec. Information regarding admission to the Notarial profession may be obtained by applying to Mr. Arthur Courtois, N.P., Room 320, New Court House, Montreal, or by consulting the Notarial Code, 1941, R.S.Q., chap. 263 (as amended).

INSTITUTE OF INTERNATIONAL AIR LAW

This Institute operates within the Faculty of Law. Its Director is Dr. Eugène Pépin.

The purpose of the Institute is to provide facilities for advanced study in International Air Law for qualified Law graduates, and also to provide an academic organization for fundamental research in this field.

The course of study normally requires two years' residence at the Institute, but those candidates whose work during the First year is, in the Director's opinion, satisfactory, may be permitted during the Second year to offer a thesis *in absentia* on an approved subject within the field of the Institute's work. If the thesis is accepted, the candidate will receive the degree of LL.M.

The annual fee for the course in residence (excluding living expenses in Montreal) is $400, plus an additional fee of $25 payable at the time of filing a thesis *in absentia*. Students in residence also pay a fee of $6 for students' activities.

Applicants for admission must hold a Law degree from an approved Law School in any part of the world, or must have been admitted to the practice of Law, but those having a working knowledge of the English and French languages will be given preference. All candidates must

present evidence of the subjects covered in their prior Law studies and of their scholastic standing.

The course commences on the first Monday of October in each year. but candidates should be in residence not later than the preceding Monday. Application forms and curricula are available at the Faculty of Law office,

McGILL LAW JOURNAL

The McGill Law Journal is managed and edited by a board of students of the Faculty of Law. Scholarship and literary capacity determine the group of students who are selected as members of the editorial board. The Journal is a recognized activity of the Faculty of Law and is designed particularly to promote understanding in the common law world of the Quebec civil law system.

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Faculty of Medicine

Faculty of Medicine Postgraduate Courses

Faculty of Dentistry

Faculty of Engineering (Degrees in Engineering and in Architecture.)

Faculty of Law

Faculty of Music

Faculty of Divinity

Faculty of Graduate Studies and Research

School of Commerce

Institute of Education

Library School

School for Graduate Nurses

School of Physical and Occupational Therapy

School of Social Work

Macdonald College (Faculty of Agriculture and School of Household Science.)

French Summer School

Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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Faculty and Conservatorium of Music

ADMINISTRATIVE OFFICERS

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The Principal

The Vice-Principal

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Alexander Brott, L.Mus. . . . . *Chairman, Department of Orchestral Instruments*

Marvin Duchow, Mus.B., B.A. (N.Y.U.), M.A. (Rochester) . . . . . *Chairman, Department of Theory*

F. K. Hanson, Mus.D. . . . . *Professor of Education (Music) in the School for Teachers*

Office — 3450 Drummond St., Montreal 25

All communications should be sent to the Secretary of the Faculty of Music at the above address.

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TEACHING STAFF OF THE FACULTY AND CONSERVATORIUM OF MUSIC

DEPARTMENT OF THEORY

Professor — Denis Stevens

Associate Professors — Marvin Duchow, *Chairman*; Helmut Blume; Alexander Brott

Assistant Professor — Istvan Anhalt

Instructors — Shirley Byers; Neil Chotem; Kelsey Jones; Ria Heyninx-Lenssens; Kenneth Meek; Alice Postner

DEPARTMENT OF KEYBOARD AND VOCAL MUSIC

Associate Professor — Helmut Blume, *Chairman*

Instructors

PIANO

Ellen Ballon (Master Class)

Istvan Anhalt
Eva Baltas
Shirley Byers
Neil Chotem
Mary Corish
Lawrence Dennis
Rose Goldblatt
Edna Marie Hawkin
Edith Johnson
Samuel Levitan
Gian Lyman
Kenneth Meek
Dorothy Morton
Phillips Motley
Charles Reiner
Elizabeth Schwob-Morton
James B. Speirs
Lubomyra Zuk

ORGAN

Gian Lyman
Kenneth Meek
Phillips Motley

HARPSICHORD

Kelsey Jones

SINGING

Bernard Diamant
Ria Heyninx-Lenssens
Jean L. Millar
Edith della Pergola
Luciano della Pergola

OPERA CLASSES

Bernard Diamant
Myron Galloway
Ria Heyninx-Lenssens
Jean L. Millar
Edith della Pergola
Luciano della Pergola
Gilles Potvin

CHOIRMASTER'S TRAINING

George Little

PEDAGOGY

Edna Marie Hawkin
Kenneth Meek
Jean L. Millar
Gifford Mitchell

RADIO PROGRAMMING AND PRODUCTION

Carl Little
Donald McGill

CONSERVATORIUM CHOIR

George Little

DEPARTMENT OF ORCHESTRAL INSTRUMENTS

Associate Professor — Alexander Brott, *Chairman*

Instructors

VIOLIN

Hyman Bress — D'Arcy Shea
Arthur Garami

VIOLA

Otto Joachim — Lucien Robert
Stephen Kondaks

CELLO

Lotta Brott — Yvette Lamontagne
Walter Joachim

DOUBLE BASS

Roger Charbonneau — Natalie Clair

FLUTE

Herve Baillargeon — Mario Duschesnes

RECORDER

Mario Duschesnes

OBOE

Real Gagnier — Arthur Romano

ENGLISH HORN

Arthur Romano

SAXOPHONE

Arthur Romano

CLARINET

Ralph Masella

BASSOON

Rudolph Masella

TRUMPET

George Jones — Jacques LeComte

FRENCH HORN

Joseph Masella

TROMBONE AND TUBA

Joseph Bell — Joseph Zuskin

HARP

Dorothy Weldon

PERCUSSION

Louis Charbonneau — Michel Perreault

PEDAGOGY

Alexander Brott and Staff

CHAMBER MUSIC AND CONSERVATORIUM ORCHESTRA

Alexander Brott

SCHOOL MUSIC CLASSES

Professor — Frank Hanson

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FACILITIES

The McGill Faculty of Music is situated at 3450 Drummond Street, above Sherbrooke Street, where are located both the administrative offices and the teaching quarters of the Faculty and of the Conservatorium of Music. Facilities include a number of practice and teaching studios with piano, and one studio with small organ, all of which may be used both by regular and partial students at a nominal charge. A studio equipped with tape recorder, microphone, and instrument panel, is primarily intended for the use of radio classes, but is also available to advanced instrumental and vocal students for instructional purposes. A small but compact undergraduate music library comprises: (a) record collections donated by the Carnegie Foundation, the London Gramophone Corporation, and the British Council; (b) a representative collection of standard chamber music, orchestral, choral and piano scores, as well as a nucleus of historical editions and a reference shelf.

For the presentation of senior student recitals, orchestral and choral concerts, special lectures, and similar events, the Faculty of Music enjoys the use of nearby Redpath and Moyse Halls, both of which are located on the main campus. The music section of Redpath Library, which is also located on the main campus, offers additional valuable resources to the students of the Faculty of Music. There the student will find a moderately large miscellaneous collection embracing such fields as musical biography, history, theory, aesthetics, and other subjects, as well as the noteworthy Donalda Collection of nineteenth century operatic scores.

The Conservatorium of Music holds periodic junior student recitals. Events planned by the Faculty and Conservatorium for the session of 1957-58 are: (a) a series of Campus Concerts held fortnightly on Mondays between 1 and 2 p.m., featuring staff and senior student participants; (b) operatic performances. The Faculty of Music will also sponsor a series of public lectures by eminent authorities on subjects of specialized, as well as of more popular, interest.

RECENT EVENTS

LECTURES

University Lectures (Moyse Hall and Sir Arthur Currie Gymnasium)

GIAN-CARLO MENOTTI
SAMUEL CHOTZINOFF
LOTTE LEHMANN
SIR ERNEST MACMILLAN

CONCERTS

Campus Concerts

OPERATIC PERFORMANCES

La serva padrona
Dido and Aeneas

SCHOLARSHIPS AWARDED

Macdonald Memorial Scholarships	Lessy Ashkenazi	Pianoforte
	Gail Grimstead	Flute
	Greta Jones	Pianoforte
Peterson Memorial Scholarships	Esther Berger	Pianoforte
	Wayne Riddell	Singing
	Maureen Wark	Singing
	Olga Zwarych	Violin
Donalda Prize	Ann Golden	Singing
Ressler Memorial Scholarship	Douglas Beder	Violin
	Edna Ginsberg	Violin
S.P.E.B.Q.S.	George Morgan	Singing
Magor Scholarship	Mary Blaikie	Composition
	Gail Gunning	Composition

SCHOLARSHIPS AND BURSARIES

Details of Scholarships and Bursaries will be found in the Scholarships, Bursaries, Prizes and Medals Announcement, issued by the University and obtainable at the Registrar's Office.

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GENERAL STATEMENT

The McGill Faculty and Conservatorium of Music provide instruction in both the practical and theoretical fields of music. Faculty and Conservatorium, while sharing staff and facilities in common, maintain their distinctive functions and internal structure.

FACULTY

The Faculty of Music offers a four-year course of instruction leading to the degree of Bachelor of Music (Mus. B.). The programme of studies provides for specialization in the following fields:

(a) Composition

(b) Performance

(c) School Music

(a) Candidates for the Mus. B. degree in Composition share a large number of theoretical courses with those in the remaining fields of specialization during the first and second years. More intensive theoretical training is reserved for the third and fourth years of the Composition programme.

(b) In the field of Performance, candidates may qualify for the Mus. B. degree in any one of five programmes of study:

I Piano

II Organ

III Stringed or Orchestral Instruments

IV Voice A (Concert: Lied — Oratorio)

V Voice B (Opera)

A Professional Instructors' course is available as an option in the third and fourth years of Piano, Organ, and Stringed Instruments (Violin, Viola, Cello only), and in the second, third, and fourth years of Voice. For further particulars refer to page 2125.

(c) The music courses required for the Mus. B. degree in School Music are concentrated in the first three years of study. The fourth year, designated School for Teachers, is taken at Macdonald College. It comprises the complete programme of education courses required for the degree.

Available to all degree candidates are a large number of ensemble and fourth year elective courses in the following fields:

Orchestra

Choir

Choirmasters' Training (Collegium Musicum, Choral Conducting and Church Choral Music)

Chamber Music

Piano Ensemble

Piano Accompaniment

Opera (Acting, Staging, Coaching)

Radio (Music Production, Programming, Announcing, Radio Composition)

Pedagogy

A selected group of these courses forms a part of each required curriculum.

As previously noted, considerable emphasis is placed upon the theoretical and historical aspects of music study in each of the three fields of specialization. Important as a basis for expert musicianship, this training is equally valuable as an intellectual and humanistic discipline. It also facilitates transference from one to another field of specialization in that it calls for a large common segment of courses in the first and in the second year. An academic continuation course also forms part of the Mus. B. curriculum.

CONSERVATORIUM

The McGill Conservatorium of Music comprises a Senior and a Junior Department.

SENIOR DEPARTMENT

The Senior Department of the McGill Conservatorium offers courses of instruction leading to the diploma of Associate in Music (A. Mus.), and to that of Licentiate in Music (L. Mus.). The diploma of Associate is awarded at the conclusion of the first year of study; that of Licentiate at the conclusion of the third.

The diplomas of Associate and Licentiate are available in the field of Performance only. Candidates may qualify in any one of the five instrumental or vocal areas open to Mus. B. candidates in that field. The curriculum of studies leading to these diplomas differs from that of the degree course in Performance in that it permits maximum concentration upon practical studies with lesser emphasis upon theoretical subjects. An ensemble requirement is included in both the first and second years of the Licentiate course.

JUNIOR DEPARTMENT

The Junior Department of the McGill Conservatorium of Music offers preparatory instruction in all instruments and voice, as well as in the theory of music. Theoretical classes, although not obligatory, are nevertheless recommended as an important aid to intelligent and artistic performance. The various subjects differ as to the number of years of preparatory study required. Detailed information is provided in the table on page 2164. Candidates who have succeeded in passing the annual examinations in practical and theoretical subjects are awarded certificates at their respective grade levels.

Students of the Junior Department of the Conservatorium may, with special permission of the Department chairman, participate in certain ensemble courses of the Senior Department, or of the Faculty of Music.

Instruction in certain practical subjects is available during the summer months. Requests for information should be directed to the Secretary of the Conservatorium.

LOCAL CENTRES

In addition to its function as an institution offering courses of musical instruction, the McGill Conservatorium exists as an examining body holding annual examinations in both practical and theoretical subjects at various local centres throughout the Dominion. (The complete list

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of Local Centres will be found on page 2192). These examinations make it possible for those taking private practical or theoretical instruction, whether in Montreal or in other localities throughout the Dominion, to obtain, free of residence requirements, the grade certificates issued by the Junior Department as well as the diploma of Associate in Music. Examinations will be arranged by the Secretary when required and new centres formed upon request. Theoretical examinations at each centre are conducted under the supervision of a local representative of McGill University. All papers will be sent to McGill University itself. Practical examinations are conducted by visiting examiners. Every certificate gained by candidates in any of the public examinations will bear the imprimatur of McGill University.

STUDY COURSES

The McGill Conservatorium of Music offers instruction at all levels (Junior and Senior) to those who, while not interested in obtaining either grade certificates or diplomas, wish to study practical or theoretical subjects for their cultural or professional value.

ADMISSIONS

All applications for admission to the Faculty or the Conservatorium of Music must be directed to the Secretary of the Faculty of Music, McGill University, 3450 Drummond Street, Montreal 25, Que. (Tel: MArquette 9181, Local 482.)

ADMISSION REQUIREMENTS

FACULTY

In order to qualify for admission to the Faculty of Music, the candidate must pass (that is, obtain a minimum of fifty per cent) in each of the ten McGill School Certificate examinations listed below, and must achieve an average mark of sixty-five per cent in the ten examinations combined.

Matriculation Subject	Number of Papers
English	2
General History	1
Language — One of the following: French, German, Spanish, Latin, Greek	2
Elementary Algebra or Geometry	1
Music — Practical: Instrument or Voice 9 for candidates seeking admission to the Mus. B. programme in either Composition or School Music; Instrument or Voice 11 for Mus. B. in Performance — Theoretical: Theory 9	1
Electives — Three of the following: Biology, Botany, Chemistry, Art, Geography, Physics, Intermediate Algebra, Trigonometry, Canadian History *or* British History, a foreign language not already chosen	3

CONSERVATORIUM

Senior Department

Requirements for admission to the first (Associate) year of the Senior Department are:

Academic Subjects: High School Leaving Examinations. (N.B. North American Literature is available as an elective to candidates who wish to qualify for admission to the Associate course.)

Musical Subjects: — Practical Instrument or Voice 11
— Theoretical: Theory 9

The requirement for admission to the second (first Licentiate) year of the Senior Department is the diploma of Associate in Music.

Junior Department

See below: TRANSFER OF CREDITS — AUDITIONS: CONSERVATORIUM (JUNIOR DEPARTMENT)

TRANSFER OF CREDITS — AUDITIONS

FACULTY AND CONSERVATORIUM (SENIOR DEPARTMENT)

Applicants with music credits from other universities or music schools must submit to the Secretary of the Faculty of Music an official transcript of their record. This should be done well in advance of the date of registration. Also required is an audition in the practical subject. Auditions are held during the second and third weeks of September.

CONSERVATORIUM (JUNIOR DEPARTMENT)

Applicants who have had private or other music study elsewhere must arrange for an audition in their practical subject as well as for a theory placement test.

CLASSES OF STUDENT

FACULTY AND CONSERVATORIUM (SENIOR DEPARTMENT)

Students are registered as:

(a) **Regular Undergraduates.** These are students who have the complete requirements for admission to either the Faculty or the Senior Department of the Conservatorium, and who are following the regular programme of studies of their year towards either the Mus. B. degree or the diplomas of A. Mus. or L. Mus.

(b) **Limited Undergraduates.** These are students who have the complete requirements for admission to either the Faculty or the Senior Department of the Conservatorium but who, because of ill-health or other circumstance, are unable to complete their degree work in the required number of years. Such students may, with the Dean's permission, extend their course beyond the required period, but must complete it within: (a) eight years for the Mus. B., (b) six years for the L. Mus.

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(c) **Partial Students.** These are students who are not registered as proceeding to a degree or diploma, but who are permitted to take one or more courses. Partial students in practical subjects may not register for less than one term, and must notify the Secretary at least two weeks before the end of the term if they wish to discontinue lessons.

CONSERVATORIUM (JUNIOR DEPARTMENT)

All students in the Junior Department are registered as Partials.

EXAMINATIONS

FACULTY AND CONSERVATORIUM (SENIOR AND JUNIOR DEPARTMENTS)

Sessional Examinations

Final sessional examinations in all theoretical subjects are held in late April and early May. Examinations in all practical subjects take place during the first three weeks of May.

Deferred Examinations

Deferred practical examinations are permitted only in case of illness or other exceptional circumstances. A written request for the deferment of examination must be submitted to the Dean.

Supplemental Examinations

Students who have failed to obtain the passing grade of 60% in any written examination have the choice of: (a) passing a supplemental examination in that subject in the fall; (b) repeating the course.

Local Centre Examinations

Theoretical examinations are held at the local centres on the date of the regular sessional examinations of the Conservatorium. Practical examinations take place during May, June, and July. The regulation concerning deferred examinations applies as well to local centre candidates who also have the privilege of writing supplemental examinations in the event of failure.

Forms of entry for all local centre examinations may be obtained from the Secretary of the Faculty of Music, or from either the local honorary representatives or secretaries. A complete list of local centres will be found on page 2192. For further information concerning local centre examinations please refer to page 2111.

CLASSIFICATION OF MARKS

FACULTY AND CONSERVATORIUM (SENIOR DEPARTMENT)

100—85%	First Class
84—70%	Second Class
69—60%	Third Class
Below 60%	Failure

CONSERVATORIUM (JUNIOR DEPARTMENT)

100—95%	Very High Distinction
94—90%	High Distinction
89—80%	Distinction
79—70%	Honours
69—60%	Pass
Below 60%	Failure

FEES

TUITION FEES

N.B. The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require

FACULTY AND CONSERVATORIUM (SENIOR DEPARTMENT)

Regular Students: The fee for the course leading to the Mus. B. degree varies according to the field of specialization selected. The fees are as follows:

Mus. B. in Composition	$450 per session
" " " Performance	550 " "
" " " School Music, (First, Second, and Third Years)	450 " "
" " " School Music (Fourth Year)—Consult special announcement of School for Teachers.	

Fees for courses leading to the diplomas of Associate and Licentiate in Music are as follows:

A. Mus.	$365 per session
L. Mus.	415 " "

The annual fees for regular students also cover fees for the degree or diploma examinations at the end of the session, as well as fees for library and athletic privileges, the latter including required Physical Education, Student Health Service, and admission to home games under the control of the Athletics Board, except those of the senior football and hockey teams.

The above fees include the student activity fee of $15.

Limited Undergraduate and Partial Students. Fees for individual courses in either the Faculty of Music or the Senior Department of the Conservatorium are as follows:

ENSEMBLE COURSES:	
Orchestra and Choir	no fee
Piano Accompaniment	$75 per session
Repertory Coaching	75 " "
All other ensemble courses	50 " "
ELECTIVE COURSES:	
Radio Composition	$90 per session
All other elective courses	50 " "
THEORETICAL COURSES:	
Aural Training, Harmony, and History and Analysis	90 " "
Composition, Conducting, Counterpoint, and Orchestration	$50 per session
PRACTICAL COURSES:	
Piano, Organ, Harpsichord, Voice, Violin, Viola, and Cello	$288 per session
All other instruments	216 " "

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CONSERVATORIUM (JUNIOR DEPARTMENT)

The fee for theory classes in the Junior Department is $20 per session. Fees for practical courses in the Junior Department are scaled according to grade and medium as follows:

MEDIUM	GRADE		
	4,5,6	7,8,9	10,11
Keyboard Instruments	$126	$162	$216
Voice	—	180	216
Violin, Viola, Cello	126	180	216
Other Instruments	—	162	180

EXAMINATION FEES

FACULTY AND CONSERVATORIUM (SENIOR DEPARTMENT)

Examination fees for Limited Undergraduates and for Partial Students are $10 for each theoretical and $15 for each practical examination.

CONSERVATORIUM (JUNIOR DEPARTMENT)

Examination fees for courses in the Junior Department of the Conservatorium are as follows:

THEORETICAL COURSES:

Grade 7	$ 2
" 8	4
" 9	6
" 10	8
" 11	10

PRACTICAL COURSES:

Grade 4	$ 2
" 5	4
" 6	5
" 7	6
" 8	7
" 9	8
" 10	10
" 11	12

LOCAL CENTRES

Fees for local centre examinations are the same as those listed above for Conservatorium (Junior Department) examinations. In the case, however, of examinations leading to the diploma of Associate in Music, Senior Department rates will apply.

DATES OF PAYMENT:

TUITION FEES

The University does not issue bills for fees. Fees are due and payable at the Chief Accountant's Office between the hours of 9 a.m. and 4 p.m. (Saturday 9 a.m. to 11 a.m.) on or before October 1st.

Remittance may be made by mail in which case cheques or money orders should be made payable to McGill University, and addressed

to the Cashier, Accounting Department, McGill University, Montreal 2, P.Q.

Fees may be paid in two instalments, one at the beginning of the session, the other not later than January 15th. In such cases, the instalment fee of $5 is charged.

Special fees and penalties for late payment are shown in the General Information pamphlet which accompanies this announcement.

EXAMINATION FEES

All examination fees, including those for local centre examinations, must be paid in advance to the Secretary of the Faculty of Music, McGill University. In the case of local centre examinations, forms of application duly filled in by the candidate and accompanied by the examination fee must reach the Secretary in Montreal on or before April 1st.

ATTENDANCE REGULATIONS

1. All students are required to be punctual at all lessons.
2. The attendance register must be signed by the student after each lesson in a practical subject.
3. Lessons in practical subjects missed in consequence of the instructor's absence will be made up at the mutual convenience of instructor and pupil. Lessons missed in consequence of the pupil's absence will be made up only if notice of cancellation has been given forty-eight hours in advance, or if a doctor's certificate is produced.

PROGRAMME OF STUDIES IN THE FACULTY OF MUSIC

MUS.B. DEGREE IN COMPOSITION

CURRICULUM:

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	Composition 101	1
	Conducting 101	1
	Acoustics	1
	Practical	½
	Ensemble	2
	Academic	3
		18½
SECOND YEAR	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Composition 201	1
	Counterpoint 201	1
	Practical	½
	Ensemble	2
	Academic	3
		17½

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THIRD YEAR	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Composition 301	1
	Counterpoint 301	1
	Orchestration 301	1
	Practical	½
	Ensemble	2
	Academic	3
		18½
FOURTH YEAR	Harmony 401	2
	Composition 401	1
	Counterpoint 401	1
	Orchestration 401	1
	Ensemble	2
	Academic	3
	Electives	3
		13

PRACTICAL REQUIREMENT

The practical requirement for the Mus.B. degree in Composition is the grade 11 certificate of the Junior Department of the Conservatorium in the practical subject (instrument or voice) in which the candidate had qualified for admission. In those cases where the subject is other than piano, Piano 7 is imposed as an additional practical requirement to be completed by the end of the second year.

ENSEMBLE REQUIREMENT

Two years of either Choir or Orchestra are obligatory for all candidates qualifying for the Mus.B. degree in Composition, and may be taken in any sequence during the four year course of studies. Two remaining years of these or any of the other ensemble courses listed on pages 2149 and 2164 serve to complete the requirement. The selection is to be made in consultation with the departmental chairman or the Dean.

ACADEMIC REQUIREMENT

To fulfill the academic requirement for the first Mus.B. year in Composition, the candidate is required to select one first year course from the list of academic courses tabulated on page 2137. Beginning in the second year, the candidate must follow a continuation sequence in a selected academic subject through the last three years of study. This sequence may be pursued in any subject of the candidate's choice selected from the above-mentioned list — whether the subject be that selected in the first year or some other.

FOURTH YEAR ELECTIVE REQUIREMENT

Candidates must select any three of the following courses in order to fulfill the elective requirements in the fourth year.

History 401
" 402
" 403

Composition 402 (Radio Composition and Arranging)
(N.B. Admission only with consent of Instructor.)

COMPOSITION REQUIREMENT

In addition to the regular course requirements in composition, candidates in the fourth year must submit two original compositions to be received

by the Secretary of the Faculty not later than the last day of the second week in April. One is to be an unaccompanied vocal work (not an anthem) showing considerable vocal resource; the other a work for strings, or combination of not less than four instruments or full orchestra. The works may be in any form and the instrumental composition should be of extended length. It should be noted that manuscripts, whether accepted or not, will not be returned to the candidate.

VIVA VOCE

Candidates in the fourth year are required to take a comprehensive oral examination covering the fields of theory, musical history, form, orchestration, and general repertory. Questions may also be asked concerning the compositions submitted by the candidate.

MUS.B. DEGREE IN PERFORMANCE

CURRICULA

Candidates may qualify for the Mus.B. in Performance in any one of five programmes of study, the curriculum for each of which is tabulated below. Special requirements for the respective programmes of study will be found on pages 2123 to 2125.

I. PIANO

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Piano 101	1
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	Composition 101	1
	Conducting 101	1
	Acoustics	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Piano Ensemble 101	1
	Piano Accompaniment 101	1
		18½
SECOND YEAR	Piano 201	1
	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Counterpoint 202	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Piano Ensemble 201	1
	Piano Accompaniment 201	1
	Academic	3
		19½
THIRD YEAR	Piano 301 *or* 302 (Professional Instructor)	1
	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Counterpoint 302	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 301 *or* Collegium Musicum 101	2
	Academic	3
		19½

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FOURTH YEAR	Piano 401 *or* Piano 402 (Professional Instructor)	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 401 *or* Collegium Musicum 201	2
	Academic	3
	Electives	3
		11½

II. ORGAN

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Organ 101	1
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	Composition 101	1
	Conducting 101	1
	Acoustics	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Collegium Musicum 101	2
		18½
SECOND YEAR	Organ 201	1
	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Counterpoint 202	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Collegium Musicum 201	2
	Academic	3
		19½
THIRD YEAR	Organ 301 *or* Organ 302 (Professional Instructor)	1
	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Counterpoint 302	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Choral Conducting 301	1
	Church Choral Music 301	1
	Academic	3
		19½
FOURTH YEAR	Organ 401 *or* Organ 402 (Professional Instructor)	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Choral Conducting 401	1
	Church Choral Music 401	1
	Academic	3
	Electives	3
		11½

III. STRINGED AND OTHER ORCHESTRAL INSTRUMENTS

Candidates may qualify for the Mus.B. degree in the present programme of study in any one of the following instruments as principal practical subject.

Violin	Flute	Trumpet	Harp
Viola	Oboe (English Horn)	French Horn	Percussion
Cello	Clarinet	Trombone (Tuba)	
Double Bass	Saxophone		
	Bassoon		

The instrument selected must be that wherein the candidate qualified for admission. It is to be followed in a continuation sequence throughout the four years of study — as indicated under "Instrument" in the ensuing curriculum tabulation.

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Instrument — 101	1
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	Composition 101	1
	Conducting 101	1
	Acoustics	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 101	2
		18½
SECOND YEAR	Instrument — 201	1
	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Counterpoint 202	1
	Second Practical Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 201	2
	Academic	3
		19½
THIRD YEAR	Instrument — 301 *or* 302 (Professional Instructor — see p. 2125)	1
	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Counterpoint 302	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 301	2
	Academic	3
		19½
FOURTH YEAR	Instrument — 401 *or* 402 (Professional Instructor — see p. 2125)	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Chamber Music 401	2
	Academic	3
	Electives	3
		11½

IV. VOICE A (CONCERT: ORATORIO — LIED)

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Voice A 101	1
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	History 101	1
	Composition 101	1
	Conducting 101	1
	Acoustics	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Language 101	1
		18½
SECOND YEAR	Voice A 201 *or* Voice 202 (Professional Instructor)	1
	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Counterpoint 202	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Collegium Musicum	2
	Academic	3
		19½

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THIRD YEAR	Voice A 301 *or* Voice 302 (Professional Instructor)	1
	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Counterpoint 302	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	One of the following:	
	Piano Ensemble 101	
	Chamber Music 301	
	Church Choral Music 301	2
	Academic	3
		19½
FOURTH YEAR	Voice A 401 *or* Voice 402 (Professional Instructor)	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	One of the following:	
	Piano Ensemble 201	
	Piano Accompaniment 201	
	Chamber Music 401	
	Church Choral Music 401	2
	Academic	3
	Electives	3
		11½

V. VOICE B (OPERA)

FIRST YEAR — SUBJECT	HOURS PER WEEK
Voice B 101	1
Harmony 101	3
Aural Training 101	3
History and Analysis 101	4
History 101	1
Composition 101	1
Conducting 101	1
Acoustics	1
Practical Second Subject	½
Ensemble: Choir *or* Orchestra	2
Language 101	1
	18½
SECOND YEAR — Voice B 201	1
Harmony 201	3
Aural Training 201	3
History and Analysis 201	4
Counterpoint 202	1
Practical Second Subject	½
Ensemble: Choir *or* Orchestra	2
Acting 201	1
Coaching 201	1
Academic (Language)	3
	19½
THIRD YEAR — Voice B 301	1
Harmony 301	3
Aural Training 301	3
History and Analysis 301	4
Counterpoint 302	1
Practical Second Subject	½
Ensemble: Choir *or* Orchestra	2
Coaching 301	1
Staging 301	1
Academic (Language)	3
	19½

FOURTH YEAR	Voice B 401	1
	Practical Second Subject	½
	Ensemble: Choir *or* Orchestra	2
	Coaching 401	1
	Staging 401	1
	Academic (Language)	3
	Electives	3
		11½

SECONDARY PRACTICAL REQUIREMENT

The selection of the secondary practical subject is to be made from the list of practical subjects offered in the Junior Department of the Conservatorium. This list appears on page 2164. Non-pianists may select as their secondary practical subject: (a) piano, or (b) an instrument (not their own) other than piano. Students for whom piano is neither a principal nor a secondary subject must complete Piano 7 as an additional requirement.

All candidates selecting for their secondary practical requirement a subject in which they have had previous training must submit to an audition in which their grade level will be appraised. The degree requirement for any secondary subject is normally three grades beyond that at which the candidate was evaluated at the time of admission. The minimum grade imposed for the completion of the secondary practical requirement is 9; the maximum 201.

ENSEMBLE REQUIREMENT

Regular attendance at either Choir or Orchestra in each of the four years is obligatory for all candidates for the Mus.B. degree in Performance. The remaining ensemble requirement varies with each of the five programmes of study available in this field. The specific ensemble requirements for each of these programmes are indicated in the preceding curricula. (See page 2119.) Where options are provided, admission to these is conditional upon the consent of the departmental chairman or the Dean. Substitution of other optional ensemble courses will be considered in special cases.

ACADEMIC REQUIREMENT

Mus.B. students in the field of Performance will commence their academic course in the second year. This course is to be selected from the list of Arts subjects given on page 2138, and is to be followed in a continuation sequence through the last three years of study.

FOURTH YEAR ELECTIVE REQUIREMENT

Candidates for the Mus.B. degree in Performance are required to choose three of the following courses in fulfilment of the elective requirement in the fourth year.

History	401	
"	402	
"	403	
Composition	402	(Admission only with consent of instructor.)
Pedagogy	401	
"	402	
"	403	
"	404	

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Instrumental Class " "	101 201	(Available as special elective pedagogy courses to candidates whose principal practical subject is an orchestral wind instrument.)
Instrumental Class	301	(Available as a special elective pedagogy course to candidates whose principal practical subject is double bass.)

SPECIAL REQUIREMENTS FOR PRACTICAL EXAMINATIONS

I. PIANO

(a) *Sight-Reading.* The sight-reading requirements for all piano examinations will be of not greater difficulty than the prepared work of the previous examination.

(b) *Transposition.* Piano 101 calls for the transposition of a simple piece either a semi-tone up or down; Piano 201 calls for transposition at whole tone up or down.

II. ORGAN

(a) *Sight-Reading.* The sight-reading requirements for all organ examinations will be of not greater difficulty than the prepared work of the previous examination. An additional sight-reading test given at all organ examinations calls for the ability to read from four-part open score. In the case of Organ 101 and 201 only G and F clefs are used; the latter grade demands, however, a greater degree of sight-reading proficiency on the part of the candidate. The sight-reading tests for the subsequent organ examinations call for a knowledge of G, F, and C clefs with again a greater degree of sight-reading proficiency demanded in the fourth year.

(b) *Transposition.* The transposition requirements for organ are as follows:

Grade	Interval of Transposition
Organ 101	semi-tone up or down
" 201, 302	whole tone up or down
" 301, 402	third up or down
" 401	at any interval

(c) *Extemporization.* The requirements for the extemporization tests in the various organ examinations are as follows:

Grade	Requirements
Organ 101	Extemporization on a short motive
" 201	" " " " theme
" 301, 302	" " " theme
" 401, 402	" " two themes

III. ORCHESTRAL INSTRUMENTS

(a) *Sight-Reading.* The sight-reading requirements for examinations in strings and in the remaining orchestral instruments consist of the reading of orchestral excerpts. The 101 examination in these subjects calls for three excerpts selected by the candidate as well as three selected by the examiner. In the case of the 201 examination, four excerpts of advanced difficulty are to be selected each by candidate and examiner, while an unspecified number is called for in the 301, 302, and 402

examinations. The sight-reading requirement is dropped in the fourth year (401) examination.

(b) *Transposition.* The transposition requirements for the various wind instruments will be found in the description of course contents for the respective instruments. (See pages 2158 to 2162.)

IV. VOICE A & B

Sight-Reading. Examples of sight-reading exercises for voice examinations are issued in booklet form by the McGill Conservatorium and may be obtained by writing to the Secretary of the Faculty of Music.

SPECIAL ELECTIVE REQUIREMENT FOR PROFESSIONAL INSTRUCTORS

Candidates for the Mus.B. degree in Performance whose principal practical subject is piano, organ, or voice, and who have in their third and fourth years chosen to follow the available professional instructors' courses (302, 402) in these fields must include the corresponding pedagogy course in their list of fourth year electives. In the field of orchestral instruments the professional instructors' course is available only in violin, viola and cello. The following table makes clear the elective course required in each of the above-mentioned cases:

Professional Instructors' Course	Required Elective
Piano 302, 402	Pedagogy 402
Organ 302, 402	" 403
Voice 302, 402	" 404
Violin, Viola, Cello 302, 402	" 401

Candidates specializing in orchestral instruments other than violin, viola, or cello, and with the exception of harp and percussion, may, while following the regular performers' course of their instrument in the third and fourth years, choose Instrumental Class 101, 201, or 301 as special pedagogy electives in the fourth year. (See above: **FOURTH YEAR ELECTIVE REQUIREMENT.**)

SPECIAL LANGUAGE REQUIREMENT FOR STUDENTS QUALIFYING IN VOICE A & B

Degree candidates in Voice A or Voice B must fulfil a special language requirement in: (a) French, (b) German, and (c) Italian. Two of these language requirements are to be satisfied by: (1) the matriculation language requirements, and (2) the academic continuation course. Language 101, which is taken in the first year, serves to complete this requirement.

VIVA VOCE

All candidates for the degree of Mus.B. in Performance are required to take a comprehensive oral examination in the final year. This examination will include questions on musical history, form, and general repertory. Candidates will also be questioned on the pieces performed by them in their final practical examination, and on the history and repertory of their particular instrument. Candidates specializing as professional instructors will also be questioned on technical and musical problems involved in the teaching of their instrument, and will be expected to demonstrate a first-hand knowledge of the teaching repertory for that instrument.

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MUS.B. DEGREE IN SCHOOL MUSIC

CURRICULUM

FIRST YEAR	SUBJECT	HOURS PER WEEK
	Harmony 101	3
	Aural Training 101	3
	History and Analysis 101	4
	Composition 101	1
	Conducting 101	1
	Vocal Physiology and Choral Techniques 101	2
	Instrumental Class 101	1
	Practical First Subject 10	1
	Practical Second Subject	½
	Acoustics	1
	Ensemble	2
		19½

SECOND YEAR	SUBJECT	HOURS PER WEEK
	Harmony 201	3
	Aural Training 201	3
	History and Analysis 201	4
	Counterpoint 202	1
	Instrumental Class 201	1
	Orchestration 202	1
	Practical First Subject 11	1
	Practical Second Subject	½
	Ensemble	2
	Academic	3
		19½

THIRD YEAR		
	Harmony 301	3
	Aural Training 301	3
	History and Analysis 301	4
	Counterpoint 302	1
	Instrumental Class 301	1
	Orchestration 302	1
	Practical First Subject 101	1
	Practical Second Subject	½
	Ensemble	2
	Academic	3
		19½

FOURTH YEAR

"School for Teachers" (Please refer to page 2136.)

PRINCIPAL PRACTICAL REQUIREMENT

Candidates for the Mus.B. degree in School Music may qualify for admission in piano, a string, woodwind, or brasswind instrument, or in voice. The degree requirement is the 110 course in the practical subject in which the candidate qualified for admission.

SECONDARY PRACTICAL REQUIREMENT

This requirement is the same as that for the Mus.B. degree in performance. Please refer to page 2123.

ENSEMBLE REQUIREMENT

Candidates for the Mus.B. degree in School Music are required to take ensemble courses in all but the last year of their programme of studies. Two years of either Choir or Orchestra together with an approved ensemble course of the candidate's choice in the remaining year constitute the requirement in this subject.

ACADEMIC REQUIREMENT

This requirement is the same as that for the Mus.B. degree in Performance. Please refer to page 2123.

ELECTIVE REQUIREMENT

There is no fourth year elective requirement for the Mus.B. degree in School Music.

SPECIAL REQUIREMENTS AT PRACTICAL EXAMINATIONS

The sight-reading and transposition requirement are the same as those for the A.Mus. examination in the practical subject (orchestral instrument or voice) in which the candidate is qualifying for the degree. Please refer to page 2128.

EDUCATION REQUIREMENT

The programme of education courses called for in the fourth year is given at Macdonald College in the School for Teachers. These courses satisfy the education requirement for the Mus.B. degree in School Music. Please refer to page 2136.

PROGRAMME OF STUDIES IN THE CONSERVATORIUM OF MUSIC—SENIOR DEPARTMENT

CURRICULUM

A.MUS.

SUBJECT	HOURS PER WEEK
Practical First Subject: Instrument — 110	1
or Voice — 110 (A or B)	
Harmony 101	3
History and Analysis 101	4
	8

L.MUS.

FIRST YEAR — SUBJECT	HOURS PER WEEK
Practical First Subject: Instrument — 210	1
or Voice 210 (A or B)	
Practical Second Subject	½
Aural Training 101	3
Composition 101	1
Ensemble	4
	9½

SECOND YEAR	HOURS PER WEEK
Practical First Subject: Instrument — 310	1
or Voice 310 (A or B)	
Practical Second Subject	½
Conducting 101	1
Acoustics	1
Ensemble	4
	7½

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SPECIAL REQUIREMENTS FOR PRACTICAL EXAMINATIONS IN THE ASSOCIATE AND LICENTIATE COURSES

I. PIANO

(a) *Sight-Reading.* The sight-reading requirements for all piano examinations will be of not greater difficulty than the prepared work of the previous examination.

(b) *Transposition.* Piano 110 calls for the transposition of a simple piece a semi-tone up or down; Piano 210 calls for transposition a whole tone up or down.

II. ORGAN

(a) *Sight-Reading.* The sight-reading requirements for the organ examinations will be of not greater difficulty than the prepared work of the previous examination. An additional sight-reading test given at all Senior Conservatorium examinations in organ calls for the ability to read from four-part open score. In the case of Organ 110 only the G and F clefs will be used. The sight-reading tests for Organ 210 and 310 call for a knowledge of G, F, and C clefs, with a greater degree of sight-reading proficiency expected in the latter course.

(b) *Transposition.* The transposition requirements for organ are as follows:

Grade	Interval of Transposition
Organ 110	— semi-tone up or down
" 210	— whole tone up or down
" 310	— third up or down.

(c) *Extemporization.* The requirements for the extemporization tests are as follows:

Grade	Requirements
Organ 110	— extemporization on a short motive
" 210	— " " " theme
" 310	— " " two themes.

III. ORCHESTRAL INSTRUMENTS

Sight-Reading. The sight-reading requirements for examinations in strings and in the remaining orchestral instruments consist of the reading of orchestral excerpts. The 110 examination in these subjects call for three excerpts which are to be selected by the candidate as well as three to be selected by the examiner. In the case of the 210 examination, four excerpts of advanced difficulty are to be selected each by candidate and examiner. The sight-reading requirement is dropped in the final examination (310).

IV. VOICE A & B

Sight-Reading. Examples of sight-reading exercises for voice examinations are issued in booklet form by the McGill Conservatorium and may be obtained by writing to the Secretary of the Faculty of Music.

SECONDARY PRACTICAL REQUIREMENT FOR THE DIPLOMA OF LICENTIATE IN MUSIC

This requirement is the same as that for the degree of Mus.B. in Performance. Please refer to page 2123.

ENSEMBLE REQUIREMENT FOR THE DIPLOMA OF LICENTIATE IN MUSIC

Either Choir or Orchestra is obligatory for all diploma candidates in each of the Licentiate years.

Two hours of additional ensemble work is required in each of these years. The courses will be selected from among those listed as part of the Mus.B. curriculum in Performance in the instrumental or vocal field of the candidate's choice. The selection is to be made in consultation with the departmental chairman or the Dean.

SPECIAL LANGUAGE REQUIREMENT FOR LICENTIATE STUDENTS QUALIFYING IN VOICE A & B

Candidates for the Licentiate in either Voice A or B must fulfil a special language requirement in two of the following: (a) French, (b) German, (c) Italian. These language requirements are to be satisfied by: (1) the high school leaving language requirement; (2) Language 101 to be taken in the second year.

VIVA VOCE

Candidates for the diploma of Licentiate in Music are required to take an oral examination in the final year. Questions will be asked concerning musical history, form, and general repertory. Candidates will also be questioned on the pieces performed by them in their final practical examination, and on the history and repertory of their particular instrument.

PROGRAMME OF STUDIES IN THE CONSERVATORIUM OF MUSIC—JUNIOR DEPARTMENT

Students in the Junior Department of the Conservatorium may take courses in theory or in any of the practical subjects on page 2164. Theory instruction, while not obligatory, is recommended to all students of instruments or voice as a means of developing musicianship.

SPECIAL REQUIREMENTS FOR PRACTICAL EXAMINATIONS

Tests in sight-reading, ear training and rudiments of music, form a part of all practical examinations held by the Junior Department of the Conservatorium.

(a) *Sight-Reading.* The sight-reading tests for all practical subjects involve pieces of not greater difficulty than those prepared for the previous examination. No sight-reading test is given in the initial grade of any practical subject.

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(b) *Ear Training.* Ear tests at all practical examinations are as follows:

Grade	Test
4	The candidate will be required to reproduce (sing, hum or play) a simple three-note motive previously played by the examiner. He will also be required to tap a given simple rhythmic pattern.
5	The candidate will be required to identify (either by name of note or by interval) major and minor thirds, as well as perfect fifths and octaves played as melodic intervals by the examiner. He will also be required to reproduce given melodic and rhythmic patterns of brief duration.
6, 7, 8	The candidate will be required to identify (either by name of note or by interval) any diatonic note struck by the examiner in the scales of C, F, or G Major, within an octave of the given tonic note. Reproduction of given melodic and rhythmic patterns as for Grade 5.
9, 10, 11	The candidate will be required to identify (either by name of note or by interval) any diatonic or chromatic interval played within the limit of an octave above or below any note selected by the examiner. The notes of the given interval will be played either: (a) in succession, (b) simultaneously. Melodic and rhythmic tests will be at a more advanced level of difficulty. Candidates will also be required to identify major, minor, diminished and augmented triads, as well as the dominant seventh chord in root position.

(c) *Rudiments.* The questions on musical rudiments will deal with note and rest values, key and time signatures, and expression marks. Questions on registration in the prepared pieces will be asked at the Organ 10 and Organ 11 examinations.

N.B. Information concerning the distribution of marks in the final practical examination is available to teachers and candidates. Requests for such information should be addressed to The Secretary of the Conservatorium.

COURSES OF INSTRUCTION IN THE FACULTY AND IN THE SENIOR DEPARTMENT OF THE CONSERVATORIUM

DEPARTMENT OF THEORY

REGULAR COURSES

AURAL TRAINING 101. Solfege studies in both major and minor keys. A reading knowledge of all clefs. Rhythmic dictation in simple and compound metres. Melodic dictation of moderately difficult major or minor melodies with simple modulations. Intervals and elementary harmonic dictation.

3 hours.

Texts: Champagne, Solfège Pratique; Gedalge, L'enseignement de la musique, vols. 1-3; McHose and Tibbs, Sight-Singing Manual; Danhauser & Lemoine, Solfège des solfèges; Samuel, Quatre-vingt leçons mélodiques.

AURAL TRAINING 201. Solfeggii in all keys and with changing clefs. Transpositional drills involving clef substitution. More advanced melodic dictations with particular emphasis upon modulating melodies. Elementary two- and four-part dictation.

3 hours.

Texts: Gedalge, L'enseignement de la musique; vols. 4-10; Danhauser & Lemoine, Solfège des solfèges; Samuel, Quatre-vingt leçons mélodiques.

AURAL TRAINING 301. Difficult solfeggii involving remote modulations, chromaticism, and changing clefs. Readings from the literature including excerpts from Bach, Wagner, Hindemith, etc. Advanced melodic and harmonic dictations, the latter in chorale, fugal and other styles.

3 hours.

COMPOSITION 101. Construction of motive, phrase, and sentence preceded by analysis of melodic, rhythmic, and harmonic structures. Elementary composition in small forms.

1 hour.

Text: Goetschius, Exercises in Melody Writing.

COMPOSITION 201. Composition in the smaller homophonic forms such as ternary, minuet and trio, variation form. Also composition over a ground bass. These works are to be written for piano, organ, voice, or solo instrument with piano accompaniment, or for small instrumental combinations. Particular attention will be given to the influence of the medium upon the tonal materials, the patterns of accompaniment, and the texture.

1 hour.

Texts: Hindemith, Traditional Harmony; Schoenberg, Models for Beginners in Composition.

COMPOSITION 301. Composition in the smaller homophonic forms such as the variation, suite, sonatina, and sonata-allegro form. Composition in such contrapuntal forms as the invention, passacaglia and chaconne. Also composition of accompanied motets. Various wood-wind combinations as well as chamber orchestra are now added to the list of media employed in the preceding course.

1 hour.

Texts: Hindemith, Traditional Harmony, vol. 2; Reger, On the Theory of Modulation; Schoenberg, Models for Beginners in Composition.

COMPOSITION 401. A continuation of Composition 301 stressing the larger cyclical homophonic forms such as the sonata and the suite. The media employed include the orchestra as well as the more intimate instrumental combinations.

1 hour; 1 hour listening period.

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COMPOSITION 402. See **ELECTIVE COURSES.**

CONDUCTING 101. A basic course in orchestral repertoire, incorporating the study of baton techniques, placement of beats in simple and compound metres, score reading, instrumental ranges, and orchestral devices. Records and scores will constitute the materials for instruction. Qualified students will occasionally be permitted to conduct the senior orchestra during rehearsal periods.

1 hour.

COUNTERPOINT 201. Sixteenth century counterpoint (strict and free) in two, three and four parts.

1 hour.

Texts: Jeppesen, Counterpoint.

COUNTERPOINT 202. Free Counterpoint.

1 hour.

COUNTERPOINT 301. A continuation of Counterpoint 201. A large-scale mass movement or motet is to be submitted at the close of the session. Also double counterpoint and canon, and free counterpoint in the style of Bach (inventions, etc.)

1 hour.

Texts: Jeppesen, Counterpoint; Prout, Double Counterpoint and Canon.

COUNTERPOINT 302. Free Counterpoint.

1 hour.

COUNTERPOINT 401. Fugue.

1 hour.

HARMONY 101. An elementary course in written and keyboard harmony comprising a study of the following harmonic materials and techniques: triads and dominant seventh chords in all dispositions and inversions; principles of chord progression; part-writing drills; study of the conventional harmonic formulas and cadences; harmonic analysis; harmonization of melodies and unfigured basses in the Bach chorale style using triads, dominant seventh chords and elementary modulations.

3 hours.

Texts: McHose, Basic Principles in the Technique of 18th and 19th Century Composition; McHose and White, Keyboard and Dictation Manual.

HARMONY 201. A more advanced course in written and keyboard harmony comprising a study of the following harmonic materials and techniques: sequences and other conventional progressions; use of non-harmonic tones; secondary sevenths and altered chords; advanced part-writing problems; modulation to both related and remote keys; harmonization of melodies and unfigured basses in advanced chorale style of Bach; composition and keyboard improvisation of modulating melodies and basses; two parts in free contrapuntal style; figured chorale prelude style; thorough bass realization; harmonic analysis.

3 hours.

Texts: McHose, The Contrapuntal Harmonic Technique of the 18th Century; McHose and White, Keyboard and Dictation Manual; Bach, Organ Partitas; Bach, Little Organ Book.

HARMONY 301. A study of the harmonic materials and styles of the Viennese masters. Analysis of representative works will precede the harmonization or composition of short passages in different media based on the harmonic materials of these composers. Keyboard study will include the application of this vocabulary to the keyboard as well as specials drills in transposition, improvisation, modulation and reading from open score.

3 hours; 1 hour listening period.

Texts: Andrews, The Oxford Harmony; Schoenberg, Structural Functions of Harmony. Beethoven, Haydn, Mozart: Sonatas and Quartets, etc.

HARMONY 401. A study of the harmonic materials and styles of various groups of composers from Schubert to Debussy. Analysis of representative works will precede the composition of short pieces in different media based on the harmonic vocabularies of these masters.

2 hours; 1 hour listening period.

Texts: Andrews, The Oxford Harmony; Schoenberg, Structural Functions of Harmony. Brahms, Chopin, Debussy, Liszt, Schubert, Wagner: Selected works.

HISTORY 101. The history of the opera. An outline of the evolution of opera from 1600 to the present with musical and pictorial illustrations.

1 hour.

HISTORY 401, 402, 403. See ELECTIVE COURSES.

HISTORY AND ANALYSIS 101. Introduction to the history and literature of Western music with special emphasis upon the nature of musical materials and styles. One weekly period will be devoted to a study of analytical techniques (motivic, melodic, harmonic, and structural analysis).

4 hours.

Texts: Parrish and Ohl, Masterpieces of Music before 1750; Sachs, Our Musical Heritage.

HISTORY AND ANALYSIS 201. Music of the Classical and Romantic periods. A comparative study of selected masterworks of both periods aimed at a definition of the classical — romantic antithesis in terms of musical styles.

4 hours.

Text: Lang, Music in Western Civilization; Boyden, An Introduction to Music.

HISTORY AND ANALYSIS 301. Music of the Renaissance and Baroque periods. A study of the style and character of Renaissance and Baroque music considered both autonomously and in relation to the intellectual and aesthetic currents of these periods. The course will include detailed analyses of contrapuntal forms.

4 hours.

Texts: Apel and Davison, Historical Anthology of Music, vols. 1 and 2; Bukofzer, Music in the Baroque; Lang, Music in Western Civilization; Reese, Music in the Renaissance.

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INSTRUMENTAL CLASS 101. Group instruction in wood-wind instruments. The student is required to choose one instrument for study. Solo performance of relevant parts from ensemble material of moderate difficulty. Knowledge concerning the wood-wind instruments.

INSTRUMENTAL CLASS 201. Group instruction in brass instruments. The student is required to choose one instrument for study. Solo performance of relevant parts from ensemble material of moderate difficulty. Knowledge concerning the brass instruments.

1 hour.

INSTRUMENTAL CLASS 301. Group instruction in stringed instruments. The student is required to choose one instrument for study. Solo performance of relevant parts from ensemble material of moderate difficulty. Knowledge concerning the stringed instruments.

1 hour.

LANGUAGE 101. A course serving to complete the special language requirement for voice students.

1 hour.

ORCHESTRATION 202. Study of the range of the various instrumental families, and scoring of simple compositions for each of these groups. Intended primarily for degree candidates in the field of School Music.

1 hour.

ORCHESTRATION 301. Study of the range and technical capacities of the various orchestral instruments. Scoring for selected instrumental combinations of such works as the Bach chorales, Mendelssohn's Songs Without Words, and Schumann's Scenes from Childhood.

1 hour.

ORCHESTRATION 302. A continuation of ORCHESTRATION 202. Scoring for different instrumental combinations of simple piano works such as Schubert's Moments Musicaux, Impromptus, etc.

1 hour.

ORCHESTRATION 401. A continuation of ORCHESTRATION 301 with special emphasis on instrumental colour. Full exploitation of the technical possibilities of the various instruments. Assignments will include the rescoring of masterworks for novel combinations.

1 hour.

VOCAL PHYSIOLOGY AND CHORAL TECHNIQUES. Study of the voice as a musical instrument. The relation of song to speech. Voice classifications and physiology of the voices of children, adolescents, and adults. Problems resulting from the improper function of the voice. Techniques of training choral groups at all levels. Problems pertaining to voice ranges, accuracy, quality, diction, interpretation, general organization, and repertory.

2 hours.

Text: Lawson, Full-Throated Ease.

FOURTH YEAR ELECTIVE COURSES

COMPOSITION 402. Radio composition and arranging. A course for composers designed to develop techniques of composing and arranging musical scores for radio, film, and television programmes. Admission only with consent of instructor.

1 hour.

HISTORY 401. Music of the mediaeval period. A survey of pre-Renaissance music from Gregorian chant to the music of Dunstable.

First term: 2 hours.

Texts: Apel and Davison, Historical Anthology of Music, vol. 1; Reese, Music in the Middle Ages.

HISTORY 402. Music of the twentieth century. A course devoted to: (a) a study of musical forms, textures, and idioms of the twentieth century; (b) an analysis of representative works by major composers of the past half century; (c) a discussion of critical writings pertaining to music of this period.

Second term: 2 hours.

Texts: Bauer, Twentieth Century Music; Salazar, Music in our Time.

HISTORY 403. Development of the orchestra from the seventeenth to the twentieth century. This course will be concerned with: (a) the recent history of orchestral instruments; (b) sociological aspects of orchestral organization and performance; (c) changing values in the art of orchestration; (d) the literature of the orchestra. Assignments will stress listening and aural analysis.

First term: 2 hours.

MUSICOLOGY 401. Introduction to Musicology.

PEDAGOGY 401. The pedagogy of stringed instruments. The physical nature and characteristics of these instruments. The study of basic principles and underlying instrumental instruction. The evolution of these instruments and the development of their individual repertoires. Traditional and contemporary methods of instruction.

1 hour.

PEDAGOGY 402. The pedagogy of the piano. Examination of existing piano teaching methods and materials. Elementary psychology as applied to piano teaching. Physiology: the muscular construction of the hand and the arm. The mechanism of the piano and its relation to touch and technique. The development of technique from the initial through all subsequent grades. Methods of teaching technique, interpretation, phrasing, pedalling, fingering, memorizing, practice routine, ear-training, sight-reading, demonstration lessons. The piano teacher's library. The business end of teaching.

1 hour.

PEDAGOGY 403. The pedagogy of the organ. Methods of teaching pure technique, registration, touch, interpretation. The execution of ornaments. The organist's repertoire. Service playing and accompaniment. Improvisation. Methods of programme building. Sight-reading and score reading. Elements of organ construction.

1 hour.

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PEDAGOGY 404. The pedagogy of singing. Examination of various methods of voice production. Physiology of the voice — a detailed study of the function of the larynx in speech and singing. Registers of the voice and voice classification. Breath control and diction. Tone placement in speech. Suitable studies and songs for the different types of vocal student. A general knowledge of vocal repertoire: art songs, opera, and oratorio arias. Discussion of the teacher's personal approach to the student. Demonstration lessons.

1 hour.

COURSES IN THE SCHOOL FOR TEACHERS

SCRIPTURE. The historical and literary background of the Bible.

PHYSICAL EDUCATION. Indoor games, field sports, apparatus work, social and folk rhythms.

ACADEMIC. (continuation).

EDUCATION 1. The growth and Development of Children. A study of the general characteristics of physical, social and emotional development in children.

EDUCATION 3. Educational Psychology. Growth and development of children through adolescence. Psychology of learning. Individual differences. Growth and development of personality. Testing measurement. Mental hygiene and educational guidance.

EDUCATION 4. The History of Education in Western Society. The history of education in Europe and America including a comparative study of systems of public education in the countries of Western Europe, in the United States and in Canada.

EDUCATION 10. General Educational Practice.

(a) Curriculum organization, lesson planning, teaching media and methods, individualization of instruction, evaluation and testing, school law.

(b) Audio-visual methods and materials, projection operation, the use of films and filmstrips, radio, models and displays, field trips.

(c) Organization and preparation of teaching materials for one of the following: the Primary Department, the Elementary School, the Junior High School.

EDUCATION 12. Subject methods.

a Language Arts. Language, reading literature.

b " " Spelling, writing, childhood education.

d Health and Recreation.

f Science.

i Social Studies.

h Art.

g Music.

EDUCATION 20. Observation and Classroom Practice.

Practice teaching in areas listed under Education 12 with emphasis on music teaching.

ACADEMIC CONTINUATION COURSES

1. For Mus.B. candidates in **COMPOSITION:**

I. In English:

FIRST YEAR	English 100
SECOND YEAR	One of English 200 (Shakespeare) English 210 (XVII C) English 220 (XVIII C) English 230 (XIX C)
THIRD AND FOURTH YEAR	Two of English 218a (Sidney & Spenser) & 315b (XV & XVI C) English 330 (Drama since 1600) English 335 (The Novel) English 345 (Prose since Bacon) English 350 (Milton) English 380 (Utopias)

II. In Fine Arts:

SECOND YEAR	Fine Arts 201 (Introductory)
THIRD YEAR	Fine Arts 301 (Modern Art)
FOURTH YEAR	Fine Arts 401a (Renaissance) and 401b (History of Art)

III. In German:

FIRST YEAR	German 1
SECOND YEAR	German 2 (Language)
THIRD YEAR	One of German 5 (Language) German 7 (Language & Literature)
FOURTH YEAR	One of German 8 (XVIII C) German 9 (XIX C)

IV. In History, Political Science & Economics:

FIRST YEAR	One of Economics 100 (Economic History) History 100 (European Civilization)
SECOND YEAR	One of History 210 (Great Britain) History 215 (E. Europe from the V.C.) Political Science 211G (Comparative Government)
THIRD YEAR	One of History 325 History 326 Political Science 311
FOURTH YEAR	One of History 320 (Background of Contemporary Europe) History 410 (European Thought since the Renaissance)

V. In Latin:

FIRST YEAR	Latin 11 (Language)
SECOND YEAR	One of Latin 21 (Vergil) Latin 22 (Pliny)
THIRD YEAR	One of Latin 31 (Cicero, Livy, Ovid) Latin 32 (Vergil, Sallust)
FOURTH YEAR	One of Latin 41 Latin 42

VI. In Philosophy:

SECOND YEAR	Philosophy 1 (Introduction)
THIRD YEAR	Philosophy 2 (Ethics)
FOURTH YEAR	One of Philosophy 4 (Aesthetics) Philosophy 5 (Greek) Philosophy 6 (Modern) Philosophy 7 (Mediaeval & Renaissance)

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VII. In French:

FIRST YEAR	One of French 11 French 12
SECOND YEAR	French 21 (Literature)
THIRD YEAR	One of French 31 (XVII C) French 32 (XVIII C)
FOURTH YEAR	One of French 43 (XIX & XX C) French 41 (Modern France) French 42 (XIX C)

VIII. In Spanish:

FIRST YEAR	Spanish 11 (Language)
SECOND YEAR	One of Spanish 21 (Language) Spanish 22 (Literature)
THIRD YEAR	One of Spanish 31 Spanish 32 Spanish 33 (Literature)
FOURTH YEAR	One of Spanish 41 Spanish 42 Spanish 43 (Literature)

IX. In Italian:

FIRST YEAR	Italian 11 (Language)
SECOND YEAR	Italian 21 (Language and Literature)
THIRD YEAR	One of Italian 25 Italian 31 (Literature)
FOURTH YEAR	Italian 41

N.B. In all cases, selection of courses will be governed by the stated prerequisites. See also Calendar of FACULTY OF ARTS AND SCIENCE, for additional information.

2. For Mus.B. candidates in PERFORMANCE and SCHOOL MUSIC:

I. In English:

SECOND YEAR	English 100
THIRD YEAR	One of English 200 (Shakespeare) English 210 (XVII C) English 220 (XVIII C) English 230 (XIX C)
FOURTH YEAR	One of English 318a (Sidney & Spenser) & 315b (XV & XVI C) English 330 (Drama since 1660) English 335 (The Novel) English 345 (Prose since Bacon) English 350 (Milton) English 380 (Utopias)

II. In Fine Arts:

SECOND YEAR	Fine Arts 201 (Introductory)
THIRD YEAR	Fine Arts 301 (Modern Art)
FOURTH YEAR	Fine Arts 401a (Renaissance) and 401b (History of Art)

III. In German:

SECOND YEAR	German 2 (Language)
THIRD YEAR	One of German 5 (Language) German 7 (Language & Literature)
FOURTH YEAR	One of German 8 (XVIII C) German 9 (XIX C)

IV. In History, Political Science & Economics:

SECOND YEAR	One of Economics 100 (Economic History) History 100 (European Civilization)
THIRD YEAR	One of History 210 (Great Britain) History 215 (E. Europe from the V.C.) Political Science 211G (Comparative Government)
FOURTH YEAR	One of Political Science 311 (Political Theory) History 320 (Background of Contemporary Europe) History 410 (European Thought since the Renaissance)

V. In Latin:

SECOND YEAR	Latin 11 (Language)
THIRD YEAR	One of Latin 21 (Vergil) Latin 22 (Pliny)
FOURTH YEAR	One of Latin 31 (Cicero, Livy, Ovid) Latin 32 (Vergil, Sallust)

VI. In Philosophy:

SECOND YEAR	Philosophy 1 (Introduction)
THIRD YEAR	Philosophy 2 (Ethics)
FOURTH YEAR	One of Philosophy 4 (Aesthetics) Philosophy 5 (Greek) Philosophy 6 (Modern) Philosophy 7 (Mediaeval & Renaissance)

VII. In French:

SECOND YEAR	One of French 11 French 12
THIRD YEAR	French 21 (Literature)
FOURTH YEAR	One of French 31 (XVII C) French 32 (XVIII C) French 41 (Modern France) French 42 (XIX C) French 43 (XIX & XX C)

VIII. In Spanish:

SECOND YEAR	Spanish 11 (Language)
THIRD YEAR	One of Spanish 21 (Language) Spanish 22 (Literature)
FOURTH YEAR	One of Spanish 31 Spanish 32 Spanish 33 (Literature) Spanish 41 Spanish 42 Spanish 43 (Literature)

IX. In Italian:

SECOND YEAR	Italian 11 (Language)
THIRD YEAR	Italian 21 (Language and Literature)
FOURTH YEAR	One of Italian 25 Italian 31 (Literature) Italian 41

N.B. In all cases, selection of courses will be governed by the stated prerequisites. See also Calendar of FACULTY OF ARTS AND SCIENCE, for additional information.

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DEPARTMENT OF KEYBOARD AND VOCAL MUSIC

PRACTICAL COURSES

N.B. Practical courses in the curriculum of the Faculty and Conservatorium are numbered according to the following plan:

	Degree Courses	Diploma Courses
First Year	101	110 (Associate)
Second Year	201 202 (Professional Instructor — Voice Only)	210 (First Licentiate)
Third Year	301 302 (Professional Instructor)	310 (Second Licentiate)
Fourth Year	401 402 (Professional Instructor)	

PIANO

PIANO 101

Scales: All major, minor (melodic and harmonic), and chromatic scales at the distance of an octave, third, sixth, and tenth, through four octaves. These are studied in both similar and contrary motion, beginning with either the highest or the lowest note, legato and staccato, forte and piano. Also all major scales in double thirds and double octaves through two octaves in similar motion.

Arpeggios: Common chords as well as dominant and diminished seventh chords at the distance of an octave, third, sixth, and tenth, through four octaves. These are studied in both similar and contrary motion, beginning with either the highest or the lowest note, legato and staccato, forte and piano. Also all common chords in double octaves, beginning with either the highest or the lowest note.

Exercises and Studies: *A-PD; C-GP (any one); Cor-FPT; Cr-Et (any one); Cz-AFD (any two); P-PE (Nos. 1-12).

*The complete list of exercises and studies referred to in this and in the subsequent piano courses is enumerated below. To conserve space these works will be referred to in the text by means of letter symbols rather than by their full title.

A-PD — Aronson, Pianist's Digest
B-E — Beringer, Exercises
C-GP — Clementi, Gradus ad Parnassum
Ch-Et — Chopin, Etudes
Cor-FPT — Cortot, Foundations of Piano Technique
Cr-ET — Cramer (Buelow), Etudes
Cz-AFD — Czerny, The Art of Finger Dexterity, Op. 740
P-PE — Pischna, Progressive Exercises

Prepared Pieces: Candidates are required to submit the titles of four pieces which they will have studied during the year. The titles will be selected from the list given under Piano 110. Adequate mastery of the technical and musical problems occurring in these pieces must be demonstrated. A complete performance from memory is required in the case of only one piece to be selected by the candidate.

PIANO 110

Scales and Arpeggios: The same as for Piano 101.

Exercises and Studies: The same as for Piano 101.

Prepared Pieces: Candidates are required to perform one selection from each of the following four groups:

I.	Bach	English Suite in G Minor (Prelude or any two movements). Partita in B Flat Major (any two movements). The Well-Tempered Clavier (any Prelude and Fugue).
	Couperin	Ordres (Nos. 1-5: any two movements).
	Rameau	L'Egyptienne. Les Tendres plaintes. La Villageoise.
II.	Bach (W.F.) . .	Sonatas (any one).
	Bach (K.P.E.) .	Sonatas (any one).
	Beethoven . . .	Sonata Op. 2 No. 2 (first movement). Sonata Op. 2 No. 3 (first movement). Sonata Op. 27 No. 1 (first movement). Sonata Op. 31 No. 2 (last movement).
	Galuppi	Sonatas (any one).
	Haydn	Sonatas (first and second, or second and third movement of any one sonata).
	Mozart	Sonata in A Major, K. 331. Sonata in B Flat Major, K. 333 (first movement). Sonata in D Major, K. 576 (first movement).

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III.	Brahms	Intermezzo Op. 117 No. 3. Intermezzo Op. 119 No. 2.
	Chopin	Mazurka Op. 17 No. 4. Mazurka Op. 24 No. 2. Mazurka Op. 30 No. 2. Mazurka Op. 33 No. 2. Mazurka Op. 33 No. 4.
	Chopin	Nocturne Op. 9 No. 1. Nocturne Op. 32 No. 1. Waltz Op. 34 No. 3. Waltz Op. 69 No. 1.
	Liszt	Valse oubliée No. 1.
	Mendelssohn . .	Songs without Words Op. 30 No. 5.
	Schubert	Moments musicaux Op. 94 (Nos. 1 and 6 or any of the remaining pieces in this opus group).
	Schumann . . .	Fantasy — Pieces Op. 12 (No. 1, or Nos. 3 and 4). Papillons (Introduction and any two). Scenes from Childhood (any three).
IV.	Bartok	Hungarian Peasant Songs (any two).
	Debussy	Preludes (Book 1: "Voiles"). Children's Corner ("The Snow is Dancing").
	Robert Fleming .	Sonatina.
	Granados . . .	Spanish Dances (any one).
	Scriabine . . .	Etude in C Sharp Minor.
	Shostakovitch . .	Three Fantastic Dances Op. 1.

PIANO 201

Scales: The same as for Piano 101. Also all minor and chromatic scales in double thirds and double octaves, through two octaves, in similar motion.

Arpeggios: The same as for Piano 101. Also all dominant and diminished seventh chords in double octaves, beginning with either the highest or the lowest note.

Exercises and Studies: A-PD; Cor-FPT. Any two etudes from: C-GP; Cr-Et; Cz-AFD*; Ch-Et. Also P-PE (any ten from No. 13 to the end), or B-E (any ten).

Prepared Pieces: Candidates are required to perform one selection from each of the four groups listed under PIANO 110.

PIANO 210

Scales and Arpeggios: The same as for Piano 201.

Exercises and Studies: A-PD; Cor-FPT; B-E (any ten). Any three etudes from Cr-Et; C-GP; Cz-AFD. Also P-PE (any ten from No. 13 to the end).

Prepared Pieces: Candidates must prepare and submit for approval a programme of five works comprising one representative work from each of the following periods:

* Note however that the study prepared for the previous examination may not be included. This rule applies as well to prepared pieces and is binding for all subsequent grades.

I. Baroque — e.g.

Bach	Italian Concerto. Partitas. Suites. The Well-Tempered Clavier (any prelude and fugue).
Couperin . . .	Ordres.
Handel	Suites.
Rameau	Ordres.
D. Scarlatti . .	Sonatas.

II. Classical — e.g.

Beethoven . . .	Concertos (first or last movement of any of the piano concertos with cadenza). Sonatas.
Haydn	Sonatas.
Mozart	Concertos (first or last movement of any of the piano concertos with cadenza). Sonatas.

III. Romantic — e.g.

Brahms	Ballades. Intermezzi. Rhapsodies.
Chopin	Ballade in A Flat Major. Berceuse. Etudes. Polonaises.
Liszt	Etudes ("Forest Murmur", "Un Sospiro"). Polonaise in E Major.
Mendelssohn . .	Rondo Capriccioso.

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	Schubert	Impromptus (any two). Sonata Op. 120.
	Schumann . . .	Carneval de Vienne. Fantasiestücke. Kreisleriana. Novelettes.

IV. Impressionist — e.g.

Debussy	Children's Corner. Images. Preludes. Reflets dans l'eau. Suite bergamasque.
Ravel	Jeux d'eau. Sonatine.

V. Contemporary — e.g.

Works of: Bartok, Howard Fergusson, Hindemith, Milhaud, Poulenc, Shostakovitch, Villa-Lobos, etc.

PIANO 301

Scales and Arpeggios: The same as for Piano 201.

Exercises and Studies: B-E (any ten). Also any three from: C-GP; Cr-Et; Cz-AFD.

Prepared Pieces: The same as for Piano 210.

PIANO 302

Scales, Arpeggios, Exercises and Studies: The same as for Piano 301.

Prepared Pieces: Candidates must prepare a previously approved sonata programme consisting of one each of Scarlatti, Mozart, Beethoven, and Romantic sonatas.

Pedagogy: Candidates are required to demonstrate their pedagogical skill in instructing a beginner in basic principles. In addition, candidates will be examined as to their knowledge of, and ability to demonstrate, underlying principles of fingering. Also application of these principles in the scales, arpeggios, exercises, studies and prepared pieces.

PIANO 310

Prepared Pieces: The performance, from memory, of a previously approved representative recital programme, also to be given in public if required. The examination also calls for the performance of one piano concerto (e.g. Bach, Mozart, Beethoven, Chopin, Schumann, Liszt, Grieg, Tschaikovsky, Brahms (D Minor), Rachmaninoff (C Minor).

PIANO 401

The same as Piano 310.

PIANO 402

Prepared Pieces: Candidates are to perform a previously approved programme of five works as in Piano 301 (210).

Pedagogy: Candidates must demonstrate their skill in analyzing technical and musical problems involved in teaching the following: hand- and arm-position, relaxation, principles of fingering, legato and staccato touch, pedalling, execution of ornaments, phrasing, differences of style according to historical period of composition, differences of teaching method.

ORGAN

ORGAN 101

Scales: All major, minor (melodic and harmonic), and chromatic scales played with varying degree of touch and speed:

(a) manuals only, hands together at octave, third, and sixth through three octaves;

(b) pedals only, through the full extent of the pedal board;

(c) manuals and pedals, the hands at the interval of an octave with the pedals.

Arpeggios: Common chords, major and minor, in the keys of C, D flat, D, E flat, E, and F;

(a) manuals only through three octaves;

(b) pedals only through two octaves;

(c) one hand and pedals combined in similar and contrary motion.

Prepared Pieces: [1] At the examination the candidate will be required to play the whole of either:

List A: Bach, Ein' Feste Burg (XVIII) [2], Willan, Prelude and Fugue in B Minor; Frank Bridge, Prelude;

or

List B: Bach, Aria in F (XII); Harold Darke, Prelude on a Theme by Tallis; Max Reger, Benedictus.

[1] At the examination questions will be asked concerning the registration of the prepared pieces. This applies as well to the examinations for subsequently listed organ courses.

[2] Bracketed Roman numerals in the present section (Organ) refer to volume numbers in the recommended Novello edition of Bach's organ works.

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ORGAN 110

Scales and Arpeggios: The same as for Organ 101.

Prepared Pieces: At the examination the candidate will be required to play the whole of either:
List A: Bach, Prelude and Fugue in A (III, p. 64); Harold Darke, Prelude on "St. Peter"; Hindemith, Sonata No. 2; *or*
List B: Bach, Christ ist erstanden (three verses) (XV); Schumann, No. 1 of four Sketches (ed. Biggs); Franck, Cantabile in B.

ORGAN 201

Scales: All major, minor (melodic and harmonic), and chromatic scales played with varying degrees of touch and speed: (a) and (b) as for Organ 101 but with increased proficiency, (c) manuals (both hands) and pedals at intervals of octave, third, and sixth in similar motion.

Arpeggios: Common chords in similar motion in all keys, manuals and pedals combined.

Prepared Pieces: At the examination the candidate will be required to play the whole of either:
List A: Bach, Sonata No. 2 (IV); Brahms, Herzlich tut mich verlangen; Langlais, Française (Suite Française); *or*
List B: Bach, Valet will ich dir geben (XIX); Mendelssohn, Sonata No. 2; Arthur Egerton, An Easter Prelude.

ORGAN 210

Scales: All major, minor (melodic and harmonic), and chromatic scales played with varying degrees of touch and speed:
(a) manuals only in similar and contrary motion, beginning with either the highest or lowest notes, at intervals of an octave, third and sixth, — also double thirds in similar motion only;
(b) pedals only, single notes and octaves;
(c) manuals and pedals together, one note to each hand, and pedals at intervals of octave, third, and sixth, with all variations of similar and contrary motion.

Arpeggios: Common chords in similar and contrary motion in all keys, manuals and pedals combined.

Prepared Pieces: At the examination the candidate will be required to play the whole of either:
List A: Bach, Toccata in F (IX, p. 176); Mendelssohn, Sonata No. 3; Franck, Pastorale; *or*
List B: Bach, Prelude and Fugue in B Minor (VII, p. 52); Howells, Sarabande for the Morning Star of Easter; Dupre, Fifteen Pieces for Organ (any three pieces).

ORGAN 301

Scales and Arpeggios: The same as for Organ 210.

Prepared Pieces: At the examination the candidate will be required to play the whole of either:

—List A: Bach, "Dorian" Toccata and Fugue (X, p. 196); Mendelssohn, Allegretto from Sonata No. 4; Widor, Symphony No. 6 (first movement); *or*

—List B: Bach, Sonata No. 6 (V); S.S. Wesley, Choral Song and Fugue; Langlais, Suite Française (Nazard).

ORGAN 302

Scales and Arpeggios: The same as for Organ 210.

Prepared Pieces: At the examination the candidate will be required to play the whole of either:

—List A: Bach, Fantasia in G (IX, p. 168); Rheinberger, Allegro non troppo from Sonata No. 5; Messiaen, Le Banquet céleste; *or*

—List B: Bach, Fugue in E Flat (XVI); Saint-Saens, Prelude in B; Langlais, Elevation (Hommage à Frescobaldi).

Pedagogy: The candidate will also be examined upon his knowledge of, and ability to demonstrate, the basic principles of fingering and pedalling, and their application in the scales, arpeggios, exercises, and pieces prepared. He will, in addition, be required to demonstrate his pedagogical skill in instructing a beginner in basic principles.

ORGAN 310

Prepared Pieces: The candidate will be required to present a public recital of one hour duration with selections from the ensuing list as well as additional items of the candidate's own choice.

Bach, Toccata, Adagio and Fugue (IX, p. 137); Bach, Variations on "Sei gegruesset, Jesu, gutig" (XIX); Bach, Concerto in A Minor (XI); Bach, Prelude and Fugue in D Major (XI); Mozart, Fantasia in F Minor; Liszt, Prelude and Fugue on BACH; Franck, Chorale No. 3; Dupre, Variations on a Noel; Willan, Introduction Passacaglia and Fugue; Hindemith, Sonata No. 1; Sowerby, Air with Variations; Jehan Alain, Litanies.

ORGAN 401

Prepared Pieces: The same as for Organ 310.

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ORGAN 402

Prepared Pieces: At the examination the candidate will be required to play the whole of either:
—List A: Bach, An Wasserflussen Babylon (five part) (XVIII, p. 13); Elgar, Sonata in G (first movement); Jehan Alain, Le Jardin suspendu; *or*
—List B: Bach, Prelude in E Flat (XVI); Bairstow, Prelude on Vexilla Regis; Harold Darke, A Fantasy.

Pedagogy: The candidate must also demonstrate his skill in analyzing all technical and musical problems involved in teaching, such as bodily positions, principles of fingering and pedalling, varieties of touch, execution or ornaments, phrasing, registration, differences of style according to historical period of composition, differences of teaching methods. The candidate must also give a pedagogical demonstration of instruction with an advanced pupil (Organ 10-11). There will be an assessment of results with young student assigned to the candidate for regular teaching at the beginning of the year.

HARPSICHORD

HARPSICHORD 101

Introduction to figured bass playing. (Recommended text; R.O. Morris, Figured Harmony at the Keyboard.) More advanced study of the different keyboard schools and of ornaments. Special finger exercises for harpsichord touch and technique. Sample repertoire: Bach, Three-Part Inventions; Bach, French Suites; Blow, Ground; Rameau, Les tendres plaintes; Scarlatti, Study in G.

HARPSICHORD 201

Further study of figured bass. Continuo and sonata playing. Study of concertos for harpsichord. Sample repertoire: Bach, Concerto in F Minor; Bach, Preludes and Fugues; Bach, Suite in B Minor for Flute, Strings and Continuo; Handel, Sonatas for Violin and Harpsichord; Scarlatti, Sonatas.

VOICE

VOICE A 101. Continuation and extension of technical exercises and studies listed under Voice 10 and 11 (Junior Department of the Conservatorium). Extension of repertoire of traditional German, French, English, and modern songs. Study of suitable parts from the oratorio and cantata literature. Examination requirements: 3 studies of a contrasting nature. 4 Songs (1 each of German, French, English, and modern songs). 1 excerpt each from Oratorio and Cantata.

VOICE B 101. Thorough study of early Italian, French, and English opera. Opera buffa; opera seria.

VOICE A 110. The same as Voice A 101-201.

VOICE B 110. The same as Voice B 101-201.

VOICE A 201. Continuation and extension of Voice A 101.

VOICE B 201. Continuation and extension of Voice B 101. Also early German Opera; singspiel; light opera.

VOICE 202. The same as Voice B 101.

VOICE A 210. The same as Voice A 201-301.

VOICE B 210. The same as Voice B 201-301.

VOICE A 301. Candidates must prepare a previously approved programme of three groups, comprising examples from the oratorio and cantata literature, early Italian or French opera, German Lieder, French art-songs, contemporary songs.

VOICE B 301. Nineteenth century grand opera. Wagner, Verdi, Meyerbeer, Saint-Saens, Puccini, etc. Candidates must be prepared to participate in the stage-productions of the opera-school and must know at least one complete leading role and one complete minor role from among the works of any of the above-named composers.

VOICE 302. The requirements are the same as for Voice 301. In addition, the candidate will be examined as to his knowledge of, and ability to demonstrate, underlying technical principles and their application to the pieces prepared, and will have to show his pedagogical skill in instructing a beginner in basic principles.

VOICE A 310. The performance of a previously approved representative song-recital programme, also to be given in public, if required. The examination also calls for a complete solo cantata, or a complete oratorio part, as well as a demonstration of the candidate's practical acquaintance with the general repertoire of the concert-singer.

VOICE B 310. The candidate must know three leading operatic roles from three different periods (e.g.: one Mozart, one Rossini; one Wagner, Verdi, or Puccini), as well as three minor operatic roles from the eighteenth or nineteenth century repertory.

VOICE A 401. The same as Voice A 310.

VOICE B 401. Same as Voice B 310.

VOICE 402. The candidate will have to perform a previously approved programme of songs, and excerpts from the cantata, oratorio, and opera literature. In addition, he will have to demonstrate his ability in analyzing all technical and musical problems involved in teaching: voice classification, voice production, tone placement, breath control, diction, phrasing, differences of style according to historical period and type of composition, differences of teaching methods (Italian, German, French schools). The candidate will also have to give a pedagogical demonstration of instruction with advanced pupil (Voice 10). There will be an assessment of results with young student assigned to candidate at beginning of the year. Also required: a practical knowledge of teaching materials as well as of the concert-singer's general repertoire, including operatic arias.

ENSEMBLE COURSES

(A) KEYBOARD:

PIANO ACCOMPANIMENT 101. Accompaniment of songs and arias by pre-classical, and romantic composers. In conjunction with regular singing classes.

1 hour.

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PIANO ACCOMPANIMENT 201. Songs by Debussy, Franck, Mahler, Richard Strauss, Wolf, and contemporary composers. Analysis of differences between solo and accompaniment playing.
1 hour.

PIANO ENSEMBLE 101. The object of this course is to develop sight-reading and pianistic team-work, and to promote an acquaintance with original works for the medium, as well as with four-hand arrangements of the chamber music and symphonic literature. Works and arrangements of works by Beethoven (Septet, Symphonies — Vols. I and II), Clementi, Haydn, Mozart, Mendelssohn (Octet), Schubert, and Weber.
1 hour.

PIANO ENSEMBLE 201. Overtures of Wagner and Weber. Symphonies of Beethoven (Vols. IV-VIII), Haydn, Mendelssohn, Mozart, Schubert, and Schumann, as well as those of Bruckner, Franck, and Mahler. Symphonic poems of Richard Strauss. Original music for two pianos by Arensky, Chopin, Rachmaninoff, Reger, etc.
1 hour.

(B) OPERA:

ACTING 201. History of acting in opera. Stage terms. Stage deportment. Methods of interpretation through mime. Schools of expression. Analysis of different acting styles in opera. Practical work: grouping, miming, moving. Scene miming from standard operas.
1 hour.

REPERTORY COACHING 201. In conjunction with Voice B 201.
1 hour.

REPERTORY COACHING 301. In conjunction with Voice B 301.
1 hour.

REPERTORY COACHING 401. In conjunction with Voice B 401.
1 hour.

STAGING 301. History of mise en scène. Production elements of opera: music, libretto, singers, chorus, orchestra conductor, ballet, stage, prompter, building, lighting, scenery, costumes, props.
1 hour.

STAGING 401. The production of an opera from start to performance.
1 hour.

(C) CHORUS:

CHORAL CONDUCTING 301. A basic course in choral technique, choir psychology, and conducting methods. Special attention will be given to intonation, blend, tone, diction, and phrasing. Choral literature will be studied up to J. S. Bach, and students will conduct a Bach cantata.
1 hour.

CHORAL CONDUCTING 401. A course in conducting choral music of the Romantic and Contemporary schools. Score study and preparation. Students will have the opportunity of conducting the Conservatorium Choir.
1 hour.

CHURCH CHORAL MUSIC 301. A survey of religious choral music until 1700. The use of the hymn in worship. Organization and management of the church choir.

1 hour.

CHURCH CHORAL MUSIC 401. Religious choral music from 1700 to the present day. Available materials for church choirs will be studied and performed. The relationship of the choir director to the minister, the congregation, and the church will be discussed.

1 hour.

COLLEGIUM MUSICUM 101. A course in Renaissance vocal ensemble music including the English, Franco-Flemish, German, and Italian schools. Special attention will be given to styles and interpretation, and the international phonetic alphabet will be used for language diction.

2 hours.

COLLEGIUM MUSICUM 201. A continuation of Collegium Musicum 101, with emphasis on Baroque and contemporary ensemble music in which solo participation plays an important part.

2 hours.

CONSERVATORIUM CHOIR. Detailed study and performance of choral literature selected from the great schools of choral composition. The programme provides a four-year comprehensive survey of choral music.

2 hours.

FOURTH YEAR ELECTIVE COURSES

RADIO 401: RADIO PROGRAMMING, CONTINUITY WRITING, AND ANNOUNCING. Programming of musical, dramatic, and variety broadcasts. Elements involved; choice and arrangement of material. Continuity writing for musical, dramatic, variety, and miscellaneous programmes: formats, research, style. Announcing. Techniques of voice production. Vocabulary. Style. Reading. Functions of announcer. Sustaining programmes, commercials. The history of radio.

1 hour.

RADIO 402: RADIO MUSIC PRODUCTION AND STUDIO TECHNIQUES. The development of broadcasting. Acoustics in broadcasting; analysis of acoustical reports to determine studio characteristics. Studio equipment: microphones, control-board, disc-and tape-recorder. Production team: artist, announcer, technician, producer. Studio techniques: solo recital, instrumental ensemble, studio orchestra, concert orchestra. Casting office. Auditioning procedures. Legal regulations in broadcasting. Attendance at live broadcasts and rehearsals.

1 hour.

DEPARTMENT OF ORCHESTRAL INSTRUMENTS

PRACTICAL COURSES

VIOLIN

VIOLIN 101

Scales: All major and minor (melodic and harmonic) scales in thirds and sixths, one note to each bow, through two octaves. Also all scales through three octaves with four different bowings. Chromatic scales through two octaves, starting from G, B flat, and D.

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Arpeggios: All major and minor chords through three octaves. Dominant seventh chords in all keys through three octaves.

Prepared Pieces: Candidates must perform any one etude from the works of each of the following composers: Dont, Fiorillo, Gavinies, Kreutzer, Rode, Rovelli.

VIOLIN 110

Scales and Arpeggios: The same as for Violin 101.

Prepared Pieces: The same as for Violin 101. Candidates must also perform one selection from each of the following groups:

I. Sonatas — Beethoven, Sonata in F Major, Op. 24; Beethoven, Sonata in G Major, Op. 30 No. 3.

II. Concertos (first or second and third movement with cadenzas) — Mendelssohn, Concerto in E Minor; Mozart, Concerto in D; Mozart, Concerto in A.

VIOLIN 201

Scales: All major and minor (melodic and harmonic) scales in thirds, sixths, octaves, and tenths, one note to each bow and two notes slurred, through two octaves. Chromatic scales through two octaves, beginning on any note.

Arpeggios: All major and minor chords through three octaves. In octaves and tenths through two octaves. Also dominant and diminished seventh chords in all keys through three octaves.

Prepared Pieces: Campagnoli, Divertissements (Nos. 2 and 6). Dont, Studies Op. 37 (any one of the last three); Paganini, Caprices Op. 1 (Nos. 13 and 24); Wieniawski, L'Ecole Moderne Op. 10 (Nos. 1 and 3).

VIOLIN 210

Scales and Arpeggios: The same as for Violin 201.

Prepared Pieces: The same as for Violin 201. Candidates must also perform one selection from each of the following groups:

I. Sonatas — Brahms, Sonata in A Major; Dohnanyi, Sonata.

II. Concertos — Bruch, Concerto in G Minor; Lalo, Symphonie Espagnole (first, fourth, and fifth movements).

VIOLIN 301

Prepared Pieces: The performance of a previously approved sonata recital programme of approximately one hour duration, consisting of classical, romantic and contemporary works. After the examination a public recital may be required. Suggested works: any of the Mozart, Beethoven, or Brahms sonatas, as well as those by Dohnanyi, Franck, Debussy, Ravel, Faure, Prokofieff, Copland or a Canadian composer.

VIOLIN 302

Scales and Arpeggios: Knowledge and demonstration of underlying technical principles involved in the performance of all scales and arpeggios of previous grades using at least three different bow groupings.

Prepared Pieces: Knowledge and demonstration of underlying technical principles involved in the performance of the following studies: Campagnoli, Divertissement (Nos. 2 and 6); Dont, Studies Op. 37 (any two of the last six); Paganini, Caprices Op. 1 (Nos. 13, 17 and 24); Wieniawski, L'Ecole Moderne Op. 10 (Nos. 1, 3, and 5).

Pedagogy: A pedagogical demonstration with young student is required.

VIOLIN 310

Prepared Pieces: The performance from memory of a previously approved recital programme lasting one hour. After examination a public recital may be required. The order of the programme should be as follows:

(1) Unaccompanied suite — e.g. any one of the Bach suites or sonatas for unaccompanied violin.

(2) Concerto — e.g. any one of the Mozart, Beethoven, Brahms, Saint-Saens (B Minor), Bruch (G Minor or D Major), Glazounov, Prokofieff (Op. 19 No. 1), Elgar, or Walton concerti; also Lalo's Symphonie espagnole.

(3) Group of pieces — e.g. Bloch, "Baal Shem" Suite; Nin, Suite espagnole; Szymanowski, La Fontaine d'Arethuse.

Any contemporary works of a similar nature may be presented, including a work by a Canadian composer (unaccompanied suite, concerto, or group of pieces).

VIOLIN 401

The same as Violin 310.

VIOLIN 402

Prepared Pieces: The requirements are the same as those for Violin 301.

Pedagogy: The candidate will have to give a pedagogical demonstration of instruction with advanced pupil (Violin 10-11). There will be an assessment of results with young student assigned to candidate for teaching at the beginning of the year. The candidate will, in addition, be required to demonstrate his skill in analyzing technical and musical problems involved in teaching, e.g. bowing, fingering, detached and slurred playing, varieties of tone, vibrato, execution of ornaments, phrasing and differences of style according to historical period of composition, differences of teaching methods.

VIOLA

VIOLA 101

Scales: All major and minor (melodic and harmonic) scales in thirds and sixths, one note to each bow, through two octaves. Also all scales through three octaves with four different bowings. Chromatic scales through two octaves, starting from G, B flat, and D.

Arpeggios: All major and minor chords through three octaves. Dominant seventh chords in all keys through three octaves.

Prepared Pieces: Candidates must perform any one etude from the works of each of the following composers: Dont, Fiorillo, Kreutzer, Rode, and Rovelli.

VIOLA 110

Scales and Arpeggios: The same as for Viola 101.

Prepared Pieces: The same as for Viola 101. Candidates must also perform one selection from each of the following groups:

I. Sonatas — Handel, Sonata in C Major; Vivaldi, Sonata in G Minor.

II. Concertos — Stamitz, Concerto in D; Telemann, Concerto in G.

VIOLA 201

Scales: All major and minor (melodic and harmonic) scales in thirds, sixths, and octaves, one note to each bow and two notes slurred, through two octaves. Chromatic scales, through two octaves, beginning on any note.

Arpeggios: All major and minor chords through three octaves. In octaves through two octaves. Dominant and diminished seventh chords in all keys through three octaves.

Prepared Pieces: Any two studies from the books of Campagnoli, Gavinies, Paganini.

VIOLA 210

Scales and Arpeggios: The same as for Viola 201.

Prepared Pieces: The same as for Viola 201. Candidates must also perform one selection from each of the following groups:

I. Sonatas — Boccherini, Sonata in G; Schubert, Arpeggione Sonata.

II. Suite or Concerto — J. Chr. Bach, Concerto; Handel, Concerto; Tchemberdchy, Suite; Vaughan Williams, Suites (any one of three).

VIOLA 301

Prepared Pieces: The performance of a previously approved sonata recital programme of approximately one hour duration, consisting of classical, romantic, and contemporary works. After the examination a public recital may be required. Suggested works: Bach, Gamba Sonatas; Brahms, Sonata in E flat; Brahms, Sonata in F minor; Honegger, Sonata; Marcello, Sonata in F; Milhaud, Sonata No. 1; Vitali, Chaconne.

VIOLA 302

Scales and Arpeggios: Knowledge and demonstration of underlying technical principles involved in the performance of all scales and arpeggios of previous grade using at least three different bow groupings.

Prepared Pieces: Knowledge and demonstration of underlying technical principles involved in the performance of three studies from each of the following: Campagnoli, Gavinies, Paganini.

Pedagogy: A pedagogical demonstration with young student is required.

VIOLA 310

Prepared Pieces: The performance from memory of a previously approved recital programme lasting one hour. After examination, a public recital may be required. The order of the programme should be as follows:

(1) Unaccompanied Suite — e.g. any one of the sonatas of Bach or Hindemith.

(2) Concerto — e.g. any one of the concertos by Bartok, Serly, or Tansman.

(3) Group of pieces — e.g. Beethoven, Variations Op. 66; Bloch, Suite; Schumann, Maerchenbilder; Stravinsky, Elegy; Weber, Andante and Rondo Hongroise.

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VIOLA 401

The same as Viola 310.

VIOLA 402

Prepared Pieces: The requirements are the same as those for Viola 301.

Pedagogy: The candidate will have to give a pedagogical demonstration of instruction with advanced pupil (Viola 10-11). There will be an assessment of results with young student assigned to candidate for regular teaching at the beginning of the year. The candidate will also have to demonstrate his skill in analyzing all technical and musical problems involved in teaching e.g. bowing, fingering, detached and slurred playing, varieties of tone, vibrato, execution of ornaments, phrasing, differences of style according to historical period of composition, differences of teaching methods.

CELLO

CELLO 101

Scales: All major, minor (melodic and harmonic), and chromatic scales through four octaves. Detached and slurred.

Arpeggios: All major and minor chords, through three octaves, slurred and detached.

Prepared Pieces: Candidates must perform any two studies from each of the following books of studies: Duport, Franchomme, Gruetzmacher.

CELLO 110

Scales and Arpeggios: The same as for Cello 101.

Prepared Pieces: The same as for Cello 101. Candidates will also have to perform: Bach, Accompanied Gamba Sonata; Saint-Saens, Concerto.

CELLO 201

Scales: All major, minor (melodic and harmonic), and chromatic scales through four octaves, with four different bowings.

Arpeggios: All major and minor chords through three octaves with four different bowings.

Prepared Pieces: Six difficult excerpts from the classical and romantic chamber music repertory, e.g. Mozart, Divertimento (String Trio) in E flat; Schubert, Piano Trio in B Flat, etc.

CELLO 210

Scales and Arpeggios: The same as for Cello 201.

Prepared Pieces: The same as for Cello 201. Candidates will also have to perform a sonata by Beethoven or Brahms, or the Concerto of Lalo.

CELLO 301

Prepared Pieces: The performance of a previously approved sonata recital programme of approximately one hour duration consisting of classical, romantic, and contemporary works. After the examination, a public recital may be required. Suggested works: Bach, any of the accompanied gamba sonatas; Beethoven: any of the sonatas or variations; Brahms, either of the two sonatas; a sonata by Kodaly, Prokofieff, Shostakovitch, (accompanied).

CELLO 302

Scales and Arpeggios: Knowledge and demonstration of underlying technical principles involved in the performance of all scales and arpeggios of previous grades, as well as three-octave scales in thirds and sixths.

Prepared Pieces: Knowledge and demonstration of underlying technical principles involved in any two works selected from each of the following books of studies: Hugo Becker, Duport, Franchomme, Gruetzmacher, Popper (High School of Cello Playing).

Pedagogy: A pedagogical demonstration with young student is required.

CELLO 310

Prepared Pieces: Three studies from each of the following: Hugo Becker, Popper. In addition, the candidate will have to perform a previously approved recital programme of approximately one hour duration. Suggested works:

(1) Any of the unaccompanied Bach suites.

(2) Any of the following concertos: Boccherini, Dvorak, Haydn, Lalo, Saint-Saens, Schumann.

(3) Bloch, Pieces from Jewish Life; Cassado, Suite; Nin, Suite; Popper: selected group of pieces.

CELLO 401

The same as Cello 310.

CELLO 402

Prepared Pieces: The requirements are the same as for Cello 301.

Pedagogy: The candidate will have to give a pedagogical demonstration of instruction with advanced pupil (Cello 11). There will be an assessment of results with young student

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assigned to candidate for regular teaching at the beginning of the year. The candidate will also have to demonstrate his skill in analyzing all technical and musical problems involved in teaching, e.g. bowing, fingering, detached and slurred playing, varieties of tone, vibrato, execution of ornaments, phrasing, differences of style according to historical period of composition, differences of teaching methods.

DOUBLE BASS

DOUBLE BASS 101

Progressive bow- and finger-technique exercises. Bach, Arioso; Eccles, Sonata; Fauré, Après un rêve. Schubert, Octet and "Trout" Quintet.

DOUBLE BASS 201

Dragonetti, Concerto. The study of orchestral parts from: Mozart, Magic Flute and Marriage of Figaro; Mozart, Symphony No. 39; Weber, Overtures to Euryanthe and Oberon; R. Strauss, Till Eulenspiegel.

DOUBLE BASS 301

Koussevitzky, Concerto; Nanny, Caprice No. 1. Prokofieff, Quintet. R. Strauss, Death and Transfiguration.

DOUBLE BASS 401

Simandl, Gradus ad Parnassum (Twenty-Four Studies). Mozart, Per questa bella mano-Obbligato for Double Bass and Voice; R. Strauss, Don Juan; Stravinsky, Pulcinella. Orchestral excerpts: Bach, Suite in B Minor; Bruckner, Symphonies; Wagner, excerpts.

FLUTE

FLUTE 101

Anderson, Etudes Op. 15 and 33; Barrere, The Flutist's Formulae; Boehm, 24 Caprices Op. 26; Moyse, Scales and Arpeggios. Chamber Music of the 17th and 18th century; sonatas by Bach; concertos by Gluck, Gretry and Haydn. Easier contemporary pieces.

FLUTE 201

Andersen, Etudes Op. 30 and 63; Hughes, 24 Studies; Moyse, Technical Studies and Exercises. Bach, Suite in B Minor and Brandenburg Concerto No. 5; concertos by Mozart; quartets and trios by Mozart and Beethoven. Debussy, Syrinx; Fauré, Fantasia; Ibert, Piece for Solo Flute; and similar pieces.

FLUTE 301

Andersen, Virtuoso Studies Op. 60; Kohler, 8 Exercises Op. 33 Book 111; Moyse, Daily Exercises; Taffanel-Gaubert, Grandes Etudes de Virtuosité. Paris Conservatory Pieces. Schubert, Variations. Study of orchestral solo passages.

FLUTE 401

Andersen, Virtuoso Studies Op. 60; Moyse, 48 Studies of Virtuosity. Ibert, Concerto. Modern flute solos. Study of orchestral solo passages.

FLUTE 110, 210, 310

The contents of these courses will consist of the material of Flute 101, 201, 301 and 401 condensed into three years instead of four.

OBOE (English Horn)

OBOE (ENGLISH HORN) 101

Brod, Six Advanced Sonatas; Ferling, Forty-Eight Studies; Haendel, Sonata in G minor.

OBOE (ENGLISH HORN) 201

Andraud, Vade-Mecum, and other studies. Haendel, Concerto in G Minor; Telemann, Sonata in A Minor. Orchestral repertoire.

OBOE (ENGLISH HORN) 301

G. Gillete, Advanced Studies. Mozart, Concerto in C Major, and Quartet for Oboe and Strings. Orchestral repertoire continued.

OBOE (ENGLISH HORN) 401

Eugene Bozza, Studies; Hugo-Bruyany, Studies; R. Lamorlette, Twelve Studies. Beethoven, Quintet; Gordon Jacob, Concerto; Mozart, Quintet; Vaughan-Williams, Concerto. Orchestral repertoire continued.

OBOE (ENGLISH HORN) 110, 210, 310

The contents of these courses will consist of the material of Oboe 101, 201, 301, and 401 condensed into three years instead of four.

CLARINET

CLARINET 101

All major, minor (melodic and harmonic) and chromatic scales and all arpeggios (common chords, dominant and diminished seventh chords) to be played tongued or slurred and phrased (grouped). Transposition of a given passage one tone up, and a half tone down. P. Mimart, Studies for Clarinet; A. Perrier, Recueil de sonates pour l'étude du style classique (Books I, II, III). Messager, Solo de Concours; H. Rabaud, Solo de Concours; Weber, Concertos 1 and 2. McGinnis, Orchestral Excerpts, Volumes I and II.

CLARINET 201

Scales and arpeggios as in Clarinet 101. Transposition of a given passage one tone up or down. Carl Baermann, Method (Books 3, 4, and 5); V. Blancon, 40 Etudes; Paul Jeanjean, 16 Etudes; A. Perrier, 20 Studies of Virtuosity. Beethoven, Trio for Clarinet, Cello and Piano; Brahms, Sonatas 1 and 2; P. Gaubert, Fantaisie pour clarinette et piano; Mozart, Trio for Clarinet, Viola and Piano. McGinnis, Orchestral Excerpts, Volumes I and II.

CLARINET 301

E. Bozza, 14 Etudes de mécanisme; A. D. Elia, 12 Studies; A. Perrier, 22 Etudes modernes. Brahms, Trios for Clarinet; Debussy, Rapsodie pour clarinette et orchestre; Louis Spohr, concertos; Robert Stark, concertos; C. M. Widor, Introduction and Rondo. Also orchestral repertoire.

CLARINET 401

Transposition of a given passage a minor third up or down. Improvisation of a cadenza. N. Delecluse, Studies on Orchestral Passages; Paul

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Jeanjean, 18 Etudes. Mozart, Quintet for Clarinet and Strings; also quintets of Arthur Bliss, Brahms, Gordon Jacob. Clarinet concertos by Mozart, Busoni, C. Nielsen, Darius Milhaud, Aaron Copland, Nicola Berezovsky.

CLARINET 110, 210, 310

The contents of these courses will consist of the material of Clarinet 101, 201, 301, 401, condensed into three years instead of four.

SAXOPHONE

SAXOPHONE 101

Labanchi-Iasilli, Books I and II; Terschak, Daily Exercises. Transpositions. Advanced solos.

SAXOPHONE 201

Ferling, 60 Etudes; Soussman, Etudes (Vol. II). Bozza, Concertino, Suite (Scaramouche, Aria, Pulcinella); Preliminary exercises for top notes.

SAXOPHONE 301

Boehm-Terschak, 53 Etudes. P. M. Dubois, Concertstueck; Glazounov, Concerto; H. Tomasi, Ballade.

SAXOPHONE 401

Advanced scales and exercises for top notes. E. Bozza, 12 Caprices; Ibert, Concertino da camera.

SAXOPHONE 110, 210, 310

The contents of these courses will consist of the material of Saxophone 101, 201, 301, and 401 condensed into three years instead of four.

BASSOON

BASSOON 101

Review of previous grades. E. Jancourt, 26 Melodic Studies. Hindemith, Sonata. Orchestral studies.

BASSOON 201

Gambaro, 18 Studies; Giampieri, 16 Daily Studies; Milde, Concert-Studies (Book 1). Concerti by Vivaldi and Mozart. Orchestral studies.

BASSOON 301

Dherin-Pierné, New Technique of the Bassoon; Milde, Concert-Studies (Book II); A. Orefici, Bravura Studies. L. Grondahl, Concerto; Gordon Jacob, Concerto (1947); Weber, Concerto. Orchestral studies.

BASSOON 401

Bertoni, 12 Modern Studies; Marcel Bitsch, Twenty Studies; Bozza, 15 Daily Studies; Piard, 16 Characteristic Studies. Bozza, Fantaisie. Orchestral repertoire.

BASSOON 110, 210, 310

The contents of these courses will consist of the material of Bassoon 101, 201, 301, and 401 condensed into three years instead of four.

TRUMPET

TRUMPET 101

All major and minor scales and arpeggios, to be played slurred, single, double and triple tongued. Sachse, Etudes for Trumpet (No. 12 with

transpositions to C, D, E flat, E and F); St. Jacome, Method for Trumpet (No. 8, Artistic Study). Haydn, Concerto for Trumpet.

TRUMPET 201

All major and minor scales and arpeggios to be played slurred, single, double and triple tongued. Charlier, Articulation Exercises (Nos. 3, 5, and 23); Sachse, Etudes for Trumpet (Nos. 1-30, with transpositions to include A, C, D and E flat). Orchestral excerpts for trumpet: Volumes I and II of Wagner's Works; (Breitkopf) Volume I of Strauss's Works (Peters).

TRUMPET 301

Sachse: Etudes for Trumpet (Nos. 1-60, with transpositions to include A, A flat, B, C, D, E flat, E and F). Georges DeLarue, Concertino; Georges Enesco, Legende. Orchestral Excerpts: Same as Trumpet 201; also Volumes I, II, and III of Orchestral Studies of Classical and Modern Works (Bartoldi, ed.)

TRUMPET 401

Sachse, Etudes for Trumpet (Nos. 1-100, with transpositions to C, D flat, D, E flat, E, F, G, A flat, A, B). Obbligato playing. Marcel Bitsch, Quatre Variations Sur Un Thème de Domenico Scarlatti; E. Bozza, Concertino; Jacques Ibert, Impromptu; Saint-Saens, Fantaisie en mi bémol. Orchestral Excerpts; same as Trumpet 301; also Volumes IV and V of Orchestral Studies of Classical and Modern Works (Bartoldi ed.)

TRUMPET 110, 210, 310

The contents of these courses will consist of the material of Trumpet 101, 201, 301, and 401 condensed into three years instead of four.

FRENCH HORN

FRENCH HORN 101

All major, minor and chromatic scales, all arpeggios, each through one octave range. Studies in two clefs.

FRENCH HORN 201

Extension of range in all scales and arpeggios. Diminished seventh chords. Double tonguing, preparatory exercises in trills, use of mute, ability to read in four clefs. Dubois, Cavatina; Franz Strauss, Concerto. Simple orchestral excerpts.

FRENCH HORN 301

Major and minor scales in thirds; arpeggios, dominant and diminished seventh chords and their resolutions. Slurred and staccato, over a range of two octaves. Use of lip trill. Double and triple tonguing in chromatic and diatonic intervals. Mozart concertos. Further studies of orchestral repertory.

FRENCH HORN 401

All transpositions. Standard orchestral and sole repertoire. Dukas, Villanelle; Mozart and Haydn concertos; Mozart, Concert Rondo.

FRENCH HORN 110, 210, 310

The contents of these courses will consist of the material of French Horn 101, 201, 301, and 401 condensed into three years instead of four.

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TROMBONE (Tuba)

TROMBONE (TUBA) 101

Lip slurs in all positions. All forms of tonguing. Introduction of alternate positions. Scales and arpeggios (tonic, dominant and diminished seventh chords). Kopprasch, Book 1.

TROMBONE (TUBA) 201

Special emphasis on tone, attack, lip slur. Introduction of tenor and alto clefs. Scales and arpeggios. Blume, Books I and II; Rochut, Book I.

TROMBONE (TUBA) 301

Blasewitsch, 26 Sequences (Rhythm and Clefs); Blume (Book III); Kopprasch (Book II); Rochut (Book II). Pieces and orchestral repertory of easy and medium difficulty.

TROMBONE (TUBA) 401

Advanced methods. Rochut (Book III). Brass Ensemble. Orchestral repertoire.

TROMBONE (TUBA) 110, 210, 310

The contents of these courses will consist of the material of Trombone (Tuba) 101, 201, 301, and 401 condensed into three years instead of four.

PERCUSSION

PERCUSSION 101

Snare drum: Completion of Podemski's Snare Drum Method. Mallets (all phonetic instruments which are struck): Completion of W. Dorn Method, and one solo piece. Timpani: Goodman Method (Section II, up to No. 40) and one solo piece.

PERCUSSION 201

Snare drum: Wilcoxon, All American Drummer (selected exercises). Study of Bass Drum and Cymbal. Technique of all small instruments such as castagnettes, tambour de basque, etc. Mallets: Goldenberg, Selected Exercises. Orchestral repertoire and one solo piece. Timpani: completion of Goodman Method. Tscherepnine: Sonata, and another repertory piece.

PERCUSSION 301

Snare drum and percussion instruments: orchestral repertory. Mallets: Goldenberg Method; studies and repertory. Bach, Concerto in A (two movements). Sight-Reading. Timpani: Goodman Method (Part III). Orchestral repertory including symphonies by Mozart, Beethoven, Mendelssohn, and Brahms; also R. Strauss, Don Juan.

PERCUSSION 401

Snare drum and percussion instruments: general repertory. Mallets: Goldenberg: all repertory and one solo piece. Timpani: general repertory. Special tuning exercises. Striegler, Concerto.

PERCUSSION 110, 210, 310

The contents of these courses will consist of the material of Percussion 101, 201, 301, and 401, condensed into three years instead of four.

HARP

HARP 101

Studies: Bochsa, Cinquante Etudes, Book I (any two).

Prepared Pieces: One obligatory, and two further selections from the following list: Bach-Grandjany, Allemande (No. 2 from Transcriptions Classiques); Bach-Grandjany, Rondo (No. 3 from Six Pieces Classiques); Couperin-Renie, Tic Tac Toc; Damase, Concertino; Grandjany, Colorado-Trail; Handel-Grandjany, Concerto in B Flat; Haydn-Renie, L'Egyptienne; Salzedo, Variations dans le style ancien; Sammartini-Grandjany, Allegretto (No. 4 from Transcriptions Classiques); Tournier, Theme and Variations; Widor, Chorale and Variations; Zabel, La Source.

N.B. Obligatory selection: choice of Damase, Handel-Grandjany, or Widor in above list.

HARP 201

Studies: Bochsa, Cinquante Etudes, Book II (any two). Orchestral repertoire.

Prepared Pieces: One obligatory, and two further selections from the following list: Bach-Renie, Bourree (from Les Classiques de la Harpe, 3eme recueil); Couperin-Grandjany, La Commerce (No. 3 from Transcriptions Classiques); Debussy, Clair de Lune; Grandjany, Rhapsodie; Grandjany, Dans la forêt du charme et de l'enchantement; Ravel, Introduction and Allegro; Renie, Allegro from the Concerto in C minor; Tournier, Sonatine, Op. 30; Tournier, Vers la source dans le bois; Pierre, Concertstueck; Prokofieff, Prelude; Salzedo, La Desirade.

N.B. Obligatory selection: choice of Ravel, Renie, or Pierre in above list.

HARP 301

Studies: Dizi, 48 Etudes (any two). Orchestral repertoire.

Prepared Pieces: One obligatory, and two further selections from the following list: Debussy, Danse Sacrée et Danse Profane; de la Presle, Le Jardin Mouillé; Fauré, Impromptu; Francisque-Grandjany, Pavane et Branle; Galeotti, Fantaisie; Gallon, Fantaisie; Handel-Grandjany, Toccata; Salzedo, Chanson dans la Nuit; Tournier, Les Anesses Grises (from 'Images', 3eme Suite); Roger-Ducasse, Barcarolle; Mozart, Concerto for harp and flute.

N.B. Obligatory selection: choice of Debussy, Faure, or Mozart in above list.

HARP 401

Prepared Pieces: Four obligatory selections plus any two other pieces from the following list: Bach-Renie, 10 Preludes and 10 Pieces; Caplet, Divertissement, 1. A La Française, 2. A L'Espagnole; Grandjany, Children's Hour; John Bull-Grandjany, The King's Hunt; Liszt-Renie, Le Rossignol; Renie, Legende 'Les Elfes'; Respighi-Grandjany,

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Siciliana; Tournier, Danse du Moujik (from 'Images', 4eme Suite); Tournier, Jazz Band; de Falla-Grandjany, Danse Espagnole, from "La Vida Breve"; Tailleferre, Concertino; Hindemith, Sonata; Orchestral repertoire.

N.B. Obligatory selections: any two of Bach-Renie, plus any two chosen from Grandjany, Tailleferre, or Hindemith in above list.

HARP 110, 210, 310

The contents of these courses will consist of the material in Harp 101, 201, 301, 401, condensed into three years instead of four.

ENSEMBLE COURSES

CHAMBER MUSIC 101. Easy duos and trios.

2 hours.

CHAMBER MUSIC 201. Duos and trios of medium difficulty.

2 hours.

CHAMBER MUSIC 301. More difficult trios. Woodwind, brass, and string quartets.

2 hours.

CHAMBER MUSIC 401. Advanced study of quartets and larger groups such as septets, octets, and nonets.

2 hours.

CONSERVATORIUM ORCHESTRA. Rehearsal and performance of suitable orchestral literature selected from the standard repertory.

2 hours.

COURSES OF INSTRUCTION IN THE JUNIOR DEPARTMENT OF THE CONSERVATORIUM

N.B. The lowest grade number assigned to the respective subjects in the Junior Department differs according to the number of years of pre-college study required in each case. The final grade number for all subjects in the Junior Department is eleven. The following table lists the various grades of study for each of the subjects offered in the Junior Department curriculum. Pamphlets describing the Local Centre Examination requirements in theoretical and practical subjects may be obtained from the Secretary of the Conservatorium.

I. THEORETICAL SUBJECTS:

Theory 7, 8, 9, 10, 11

II. PRACTICAL SUBJECTS:

Piano 4, 5, 6, 7, 8, 9, 10, 11
Violin 5, 6, 7, 8, 9, 10, 11
Clarinet 7, 8, 9, 10, 11
Recorder 7, 8, 9, 10, 11
Voice 7, 8, 9, 10, 11
Viola (Prerequisite: Violin 6) 7, 8, 9, 10, 11
Cello 7, 8, 9, 10, 11

Double Bass 8, 9, 10, 11
Flute 8, 9, 10, 11
Oboe (English Horn) 8, 9, 10, 11
Bassoon 8, 9, 10, 11
Trumpet 8, 9, 10, 11
Harp 8, 9, 10, 11
Organ (Prerequisite: Piano 9) 8, 9, 10, 11
Harpsichord (Prerequisite: Piano 10) 10, 11
Saxophone (Prerequisite: Clarinet 9) 10, 11
French Horn 11
Trombone (Tuba) 11
Percussion 11

DEPARTMENT OF THEORY

THEORY 7. This class is intended to give young beginners training in the rudiments of aural training, rhythmic reading, and staff notation. The limits set for these skills in the present grade are as follows:

(a) *Sight Singing:* The ability to sing at sight easy melodic phrases in the key of C major and in the treble clef. Scale degree numbers rather than syllables are used in this grade. The ability to sing, and to identify by ear, perfect and major intervals.

(b) *Rhythmic Reading:* The ability to articulate easy rhythms in simple meters using rhythmic syllables and the conductor's beat. The rhythms used will involve note and rest values of: one full beat, more than one beat, beat and a half, half beat.

(c) *Staff Notation:* A knowledge of treble and bass clefs, leger lines (above and below the staff), and enharmonic equivalents. The ability to write one octave of the major scale (in both ascending and descending form) in keys not beyond three sharps or flats and with or without key signatures. The ability to spell (whether orally or on paper) and to identify perfect and major intervals. A knowledge of Italian terms.

1 hour.

THEORY 8. This and the following course provide further training in musical rudiments through aural, keyboard, and notational drills. The following subjects are studied:

(a) *Rhythm:* Reading and notational drills are used as preparatory training for the solution of rhythmic problems which include a study of the beat and its background in simple and compound meters, rests, meter signatures, barring.

(b) *Scales:* The scales of C, G, and F major and their relative minors are to be played at the keyboard. Major and minor scales up to five sharps or flats are to be written in G— and F— clefs with or without signatures. Training in aural recognition of scale degrees is stressed.

(c) *Intervals:* Fluency in interval spelling is an important objective and is to be attained through keyboard, oral, and notational drills.

(d) *Triads:* Various drills in the spelling of major and minor triads.

(e) Musical Terms.

1 hour.

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THEORY 9. The study of rudiments is continued in this course as follows:

(a) *Rhythm:* Drills are provided in both rhythmic reading and staff notation which involve the subdivision of the background of the beat in simple and compound metres, ties, dotted notes, syncopation, mixed metres, and the re-grouping of incorrectly grouped notes.

(b) *Scales:* Major and minor scales up to five sharps and flats are to be played at the keyboard, and all major and minor scales are to be written whether with or without key signature and starting at any given scale degree. Further drill in the aural identification of scale degrees whether by number or by functional name is stressed.

(c) *Triads & Intervals:* The main objective of this course is the intensive study of the major, minor, diminished, and augmented triads and of the component intervals of these triads. Particular stress is placed upon the spelling, whether oral or written, of root position and inverted triads, as well as upon the ability to construct these triads at the keyboard. Other drills include the four-part disposition of major and minor chords at the keyboard and on staff, as well as the aural recognition of bass and soprano tones of such chords.

1 hour.

THEORY 10. Rhythmic training includes more intensive drills in simple, compound and mixed metres and in syncopation. Included as well are problems in barring and in the prefixing of meter signatures. The main emphasis of the present course, however, lies in elementary harmonic training. A preliminary phase of this training involves intensive drill in part-writing problems relating to the connection of triads and the resolution of dominant seventh chords, whether in root position or in inversion, as well as the detection of part-writing errors. Subsequent harmonic training comprises: (a) a study of cadences, sequences, and the principles of chord progression; (b) four-part harmonization of chorale phrases and other simple melodies, as well as of figured and unfigured basses, using diatonic triads other than the mediant in root position and inversion; (c) the composition of an original tune of from four to eight measures with indication of the harmonic background; (d) elementary harmonic analysis.

1 hour.

THEORY 11. Harmonic studies include: (a) part-writing and spelling drills; (b) the use of non-harmonic tones; (c) the resolution of secondary and diminished seventh chords, as well as of the augmented sixth, Neapolitan sixth, borrowed dominants and other altered chords; (d) the harmonization of chorale and other melodies, and of figured and unfigured basses using diatonic triads and dominant sevenths in all positions; (e) the composition of melodies of not more than eight measures in length with added part; (f) harmonic analysis.

1 hour.

DEPARTMENT OF KEYBOARD AND VOCAL MUSIC

PIANO

Note: For Ear Test and Sight Reading requirements see pages 2129-30.

PIANO 4

Scales: C, G, F major; A, E, D harmonic minor. Hands separately through one octave, followed by the tonic triad in root position.

Exercises: Four short exercises for separate hands.

Prepared Pieces: Four short pieces for both hands.

PIANO 5

Scales: C, G, D, F, B flat major; A, E, B, D, G harmonic minor. Hands separately through two octaves. Suggested speed: two notes to MM100.

Arpeggios: Common chords in root position only, in C, G, D, F, B flat major, and in A, E, B, D, G minor. Hands separately through two octaves starting from the lowest note.

Prepared Pieces[1]*:* Candidates must play one piece from each of the following three groups:

[1] In certain cases reference will be made to the title of the teaching primer or other collection in which the piece in question may be found. To conserve space, these references appear in the text by means of letter symbols. Roman numerals, when present, signify volume number. The complete titles with publishers' names and letter codes are given below:

AD — Airs and Dances, Boosey and Hawkes.

AG — Airs and Graces of the Eighteenth Century, Oxford University Press.

An. Mod — Ancient to Modern, Boosey and Hawkes.

AM — Approach to Music, Boosey and Hawkes.

BB — Bach for Beginners, Boosey and Hawkes.

CB — Children's Book, E. B. Marks.

CAOP — Classical Album of Original Piano Pieces, Boston Music Co.

CP — Contemporaries of Purcell, Hinrichsen.

DGG — Dances Grave and Gay, Boosey and Hawkes.

EES — Early English Sonatinas.

EC — Easy Classics for the first Grade, Frederick Harris.

EE — Easy Elizabethans, Boosey and Hawkes.

GM — Garden of Music, Novello.

OEW — Old English Worthies, Boosey and Hawkes.

RC — Re-Discovered Classics, Boosey and Hawkes.

RMP — Russian Music on Parade, International Music Co., N.Y.

SSC — Step by Step to the Classics, Banks and Son.

Representative selections of piano pieces for all grades in the Junior Department, are published in book form by the McGill Conservatorium of Music and are obtainable at the price of $1.

I. Anon . . . . . Old English Tune: Over the Hills and Far Away (AM-IV).

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	J. S. Bach . . .	Chorale in E Minor (BB-I).
		Intrata in G Major.
	H. Fiocco . . .	La légère (AD-I).
II.	Clementi	A Sad Study (AM-VI).
		Sonatina Op. 36 No. 3 (second movement) (SSC).
	Mozart	Minuet in C Major (AD-I).
III.	Bartok	Thirty-Two Piano Pieces (The Little Lane).
		Two Short Pieces and Two Little Dances (No. 2).
	Gretchaninoff . .	Fairy Tale Op. 98 (CB).
	Leslie Paul . . .	Suite for Piano (Stately Gavotte).
	Tansman . . .	Pour les enfants (Set II, Nos. 1 or 2).

PIANO 6

Scales: C, G, D, A, F, B flat, E flat major; A, E, B, F sharp, D, G, C harmonic minor. Hands separately and together through two octaves, piano or forte, beginning with highest or lowest note. Suggested speed: two notes to MM 100.

Arpeggios: Common chords in root position only, and in the same keys as the above scales. Hands separately and together through two octaves, starting from the lowest note.

Prepared Pieces: Candidates must play one piece from each of the following four groups:

I.	Fifty-Eight Tuneful Technical Studies (E. Schuberth & Co.) — Book I, Nos. 11-17 (any one).	
II.	J. S. Bach . . .	French Suite No. 4 (Gavotte).
		March in G Major (GM).
		Minuet and Trio in G Minor (AD-II).
	Jeremiah Clarke .	Ayre in C Major (CP).
	J. B. Loeillet . .	Minuet in E Minor (CP).
	Daniel Purcell .	Hornpipe in D Minor (CP).
III.	C. P. E. Bach .	Minuet in A Major (An. Mod).
	Haydn	Allegro, from Sonata No. 9 (AD-II).
		Minuet in G Major (AM-VI).
	Mozart	Minuet in G Major (CAOP).
		Polonaise, from Sonatina in F (RC-I).

IV.	Bartok	Mikrokosmos (Nos. 75, 76, or 78).
		Thirty-Two Pieces (Play Song, or Poor Goose Thief).
	Gretchaninoff . .	Children's Book (Nos. 9 or 13).
	Kabalevsky . . .	A Little Song, International Music Co., N.Y.
		Sonatina in A Minor.
		Toccatina in A Minor Op. 27, No. 7.
	Ernest MacMillan	Gavotte in F (EC).
	Shostakovitch . .	A Gay Story (An. Mod).
	Tansman . . .	Pour les enfants (Set III, Nos. 3 or 4).
	Healey Willan . .	Peter's Book (Peter Enjoys a Swing).

PIANO 7

Scales: All major, harmonic minor, and chromatic scales. Also A, E, B, D, G, C, F melodic minor. Hands together through two octaves, beginning from either highest or lowest note. (Melodic minors from lowest note only.) Forte or piano. Suggested speed: four notes to MM 72.

Arpeggios: Common chords in all major and minor keys in root position only. Hands together through two octaves, beginning on the lowest note.

Prepared Pieces: Candidates must play one piece from each of the following four groups:

I.	Burgmüller . . .	Twenty-Five Easy and Progressive Studies, Op. 100 (any one of Nos. 9, 12, 18).
	Czerny	One Hundred and Sixty Eight-Measure Exercises, Op. 821 (Nos. 1 and 2, or 12 and 13, or 15 and 18).
		Practical Method for Beginners, Op. 599 (Nos. 58 and 59, or No. 61, or Nos. 63 and 67).
	Duvernoy . . .	Twenty-Five Elementary Studies, Op. 176 (any one of Nos. 18, 23, 25).
II.	Anon	Courante in A Minor (EE).
	Anon	Siciliano (AG).
	Bach	Six Little Preludes (No. 2). Twelve Little Preludes (No. 10).
	Byrd	Gigg, or Galliard (DGG).

	Farnaby	Tell Me, Daphne, or Bonnie Sweet Robin (EE).
	Handel	Fughetta in C. Suite No. 13 (Gigue).
	Lully	Minuet (AG).
	Stanley	Invention (OEW).
III.	Arne	Sonata No. 7 in A (last movement).
	Attwood . . .	Sonatina (EES).
	Beethoven . . .	Sonatina in F (first or second movement). Variations on "Ich hab ein kleines Hütchen" (Theme and Var. 1). Variations on an Original Theme in G Major (Theme and Var. 1 and 3).
	Clementi	Sonatina in C, Op. 36 No. 1 (first movement).
	Haydn	Sonata in C — Hinrichsen Edition, Vol. 101 (Andante).
	Hook	Rondo Pastorale (EES).
	Kuhlau	Sonatina in G, Op. 88 No. 2 (Andante Cantabile).
	Mozart	Variations on "Come un agnello", K. 460 (Theme and Var. 1).
IV.	Bartok	For Children, Vol. I (Nos. 1 or 17). For Children, Vol. II (Nos. 1 or 20).
	Bortkiewicz . .	The Hardy Tin Soldier.
	Elgar	Sonatina (Andantino).
	Grieg	Lyric Pieces (Arietta).
	Kabalevsky . . .	Children's Pieces Op. 27 (A Little Fairy Tale, or An Old Dance, or Having Fun).
	C. Le Fleming . .	Squirrel Nutkin.
	Liszt	Vier Kleine Klavierstuecke (No. 4).
	Prokofieff . . .	Music For Children Op. 65, No. 3.
	Schubert	Ecossaise in B Minor.
	Shostakovitch . .	The Mechanical Doll.

PIANO 8

Scales: All major, minor (harmonic and melodic) and chromatic scales. Hands together through four octaves, in similar motion only, beginning on the lowest or highest note. Legato and staccato, piano and forte. Suggested speed: four notes to MM 92 legato, and MM 72, staccato.

Arpeggios: All major and minor common chords, with inversions, through four octaves, beginning on the lowest note.

Prepared Pieces: Candidates must play one selection from each of the following five groups:

I.	Bertini-Germer .	Fifty Selected Studies (any one of Nos. 7, 12, 15, 17, 22).
	Czerny	Preliminary School of Finger Dexterity Op. 636 (any one of Nos. 5, 6, 10, 17). School of Velocity, Book I, Op. 299 (any one of Nos. 1, 2, 4).
	Heller	Twenty-Five Melodious Studies, Op. 45 (any one of Nos. 11, 18, 19, 23).
II.	Bach	Two-Part Inventions (No. 1 in C, or No. 4 in D Minor). Six Little Preludes (No. 6). Twelve Little Preludes (No. 5).
	Byrd	Courante, or Martin sayd (DGG).
	Handel	Suite No. 14 (Air). Suite No. 16 (Allemande).
	Martini	Sonata in E (Andantino).
	Purcell	Suite No. 3 (Courante).
	Rutini	Sonata in F (Rondo).
III.	Beethoven . . .	Sonata Op. 49, No. 2 (first movement). Bagatelle in G Minor, Op. 119 No. 1. Bagatelle in D Minor, Op. 33 No. 6. Variations on 'Nel cor più' (Theme and Var. 1 and 2).
	Camidge	Finale (EES).
	Clementi	Sonatina in E Flat, Op. 37 No. 1 (first movement). Sonatina in G, Op. 36 No. 2 (first movement). Sonatina in F, Op. 38 No. 3 (first movement).

	Hook	Sonatina (EES).
	Jones	Sonatina (EES).
	Kuhlau	Sonatina in C, Op. 55 No. 1 (first movement).
		Sonatina in G, Op. 35 No. 2 (first movement).
		Sonatina in G, Op. 88 No. 2 (first movement).
	Mozart	Minuet in D, K. 355.
IV.	Chopin	Preludes (Nos. 4 or 6).
		Mazurka Op. 7 No. 2.
	Elgar	Sonatina (Allegro).
	Liszt	Consolations (Nos. 1 or 4).
	Mendelssohn . .	Christmas Pieces (No. 2 or 3)
	Schumann . . .	Forest Scenes (Lonely Flower).
		Scenes from Childhood (The Bogey Man).
V.	Bartok	For Children, Vol. I (any one of Nos. 5, 6, 8, 27).
		For Children, Vol. II (any one of Nos. 6, 8, 18).
	Bortkiewicz . . .	The Nightingale.
	Kabalevsky . . .	Children's Pieces Op. 27 (any one of: Etude, A Little Joke, Sonatina, Dance).
	Karganoff . . .	Scherzino in A major.
	Prokofieff . . .	Children's Suite Op. 65 (any one of Nos. 2, 4, 10).

PIANO 9

Scales: All major, harmonic minor, and chromatic scales, in similar motion through four octaves and contrary motion through two octaves, beginning with the lowest or highest note. All melodic minors in similar motion only. Also all major scales at the interval of a third. Forte and piano, legato and staccato. Suggested speed: legato — four notes to MM 108; staccato — four notes to MM 82.

Arpeggios: All major and minor common chords, with inversions, through four octaves, beginning with the lowest or highest note. Also dominant seventh chords in root position and from lowest note only through four octaves. Forte and piano, legato and staccato. Suggested speed: legato — four notes to MM 100; staccato — four notes to MM 72.

Prepared Pieces: Candidates must play one selection from each of the following five groups:

I.	Bertini-Germer .	Fifty Selected Studies (any one of Nos. 39, 43, 48, 49).
	Cramer-Buelow .	Fifty Selected Studies (Nos. 1 or 19).
	Czerny	Preliminary School of Finger Dexterity Op. 636 (any one of Nos. 1, 2, 7, 14, 21). School of Velocity Op. 299, Book I (any one of Nos. 5, 6, 7, 8).
II.	Bach	Two-part Inventions (any one of: No. 6 in E, No. 11 in G Minor, No. 13 in A Minor, No. 14 in B Flat). Three-part Inventions (No. 7 in E Minor).
	Handel	**Suite No. 7** (Allegro or Andante).
	Paradies	Sonata in B Flat (Andante).
	Purcell	Suite No. 2 (Prelude). Suite No. 5 (Prelude).
	Scarlatti	Sonata No. 13 (Pastorale).
III.	Beethoven . . .	Sonata Op. 49 No. 1 (either movement). Bagatelle in E Flat Op. 126, No. 3. Variations on "La stessa, la stessissima" (Theme and Finale).
	Clementi	Sonatinas: Op. 38 No. 1 in G, Op. 36 No. 6 in D, Op. 36 No. 3 in C (any of the first movements).
	Dussek	Rondo in E Flat.
	Haydn	Sonata in G — Peters edition, No. 11 (first movement).
	Kuhlau	Sonatina in C, Op. 20 No. 1 (first or third movement)
	Mozart	Sonata in G, K. 283 (second movement). Fugue in G Minor, K. 154
IV.	Chopin	Prelude No. 10. Mazurka in C Sharp Minor Op. 6 No. 2.

	John Field . . .	Nocturne No. 5 in B Flat
	Grieg	Lyric Pieces Op. 43 (No. 1 or No. 4).
	Liszt	Consolations (No. 2)
	Mendelssohn . .	Christmas Pieces (No. 5 in G Minor). Tarantella in C Major.
	Palmgren . . .	Maynight.
	Schubert	Waltzes (any three)
	Schumann . . .	Forest Scenes Op. 82 (No. 1) Scenes from Childhood (Nos. 3 and 4).
	Eric Thiman . .	Musical Sketch Book (Silent Pool).
V.	Violet Archer . .	Habitant Sketches (No. 2).
	Bartok	For Children, Vol. I (Nos. 38 and 40).
	Debussy	Children's Corner (The Little Shepherd, or Golliwog's Cakewalk). Preludes (La plus que lente).
	H. Ferguson . .	Five Bagatelles (No. 2).
	Grovlez	La Sarabande.
	Levine	Humoresque.
	Liadov	The Music Box.
	MacDowell . . .	Shadow Dance.
	O. Pinto	March, Little Soldier.
	Rebikov	Danse des clochettes.
	Spendiarov . . .	Berceuse Op. 3 No. 2.
	J. Turina . . .	The Circus (No. 5).

PIANO 10

Scales: All major, minor (harmonic and melodic) and chromatic scales, in similar and contrary motion, beginning with the lowest or highest note. Also all scales at the interval of a third, sixth or tenth, through four octaves, in similar motion only. Forte and piano. Legato and staccato. Suggested speed: legato — four notes to MM 120; staccato — four notes to MM 90. Also broken octaves, hands separately, in all keys, through two octaves. Suggested speed: four notes to MM 60.

Arpeggios: Major and minor common chords through four octaves, beginning with the lowest or highest note (root position and inversions). Dominant and diminished sevenths in

root position and inversions, beginning with the lowest note only. Forte and piano, legato and staccato.

Prepared Pieces: Candidates must play one selection from each of the following five groups:

I.	Cramer-Buelow	Fifty Selected Studies (No. 10).
	Czerny	School of Velocity, Book I, Op. 299 (No. 9).
		School of Velocity, Book II, Op. 299 (No. 1).
II.	Bach	Three-part Inventions (any one).
	Couperin	Suites (any two movements).
	Rameau	Suites (any two movements).
	Scarlatti	Sonatas (any one).
	Telemann	Fantasias (any one).
III.	Beethoven	Sonata Op. 49 No. 1.
	Beethoven-Busoni	Six Ecossaises.
	Haydn	Sonata in E Minor, No. 2. (first, or second and third, movement).
		Sonata in D Major, No. 7. (first, or second and third, movement).
	Mozart	Sonata in G, K. 283 (first or last movement).
		Sonata in C, K. 545 (first or last movement).
		Sonata in F, K. 547 (first or last movement).
IV.	Brahms	Waltzes, Op. 39 (any two).
		Intermezzo in A Minor, Op. 76, No. 4.
	Chopin	Three Ecossaises.
		Mazurkas (Op. 30, Nos. 1 and 2, or Op. 67, Nos. 2 and 4).
		Waltz in B Minor and Minute Waltz.
		Nocturne in F Minor Op. 55, No. 1.
	Faure	Song Without Words Op. 17.
	Liszt	Consolation No. 3 in D Flat.
	Mendelssohn	Songs Without Words (any two of: Nos. 1, 14, 25, 29, 36).

	Schubert	Impromptu in A Flat, Op. 142, No. 2.
		Moments Musicaux, Op. 94, Nos. 1 and 2.
	Schumann . . .	Scenes from Childhood (any two pieces).
	Schumann . . .	Romance in F Sharp Major.
V.	Bartok	Three Rondos on Folk Tunes (any one).
	Lennox Berkeley.	Five Short Pieces (1937) — Chester Ed.
	Debussy	Arabesque (No. 1 or 2).
		Preludes, Vol. I (No. 1, Danseuses de Delphes).
	De Falla	Serenata Andaluza.
	Ibert	Little White Donkey.
	Kabalevsky . . .	Variations Op. 40, No. 1.
	Martinu	Etudes and Polkas, Vol. 3 (Polka in A Minor).
	Pinto	Memories of Childhood (Nos. 1 and 5).
	Poulenc	Valse.
	Prokofieff . . .	Gavotte in F Sharp Minor, Op. 32.

PIANO 11

Scales: Major, minor (harmonic and melodic), and chromatic scales in all keys, at the octave, third, sixth or tenth, with staccato or legato touch, and beginning from either the highest or lowest note. In similar and contrary motion. Also broken octaves in all keys through two octaves, hands together.

Arpeggios: Common chords, dominant and diminished seventh chords in all positions at the interval of an octave, starting on the highest or lowest note, with staccato and legato touch.

Note: Scales and arpeggios should be played at as fast a speed as is consistent with clarity and accuracy and without group accentuation.

Prepared Pieces: Candidates must play any two etudes from group I, and one selection from each of the succeeding four groups:

I.	Clementi	Gradus Ad Parnassum.
	Cramer-Buelow .	Fifty Selected Studies (from Nos. 13, 14, 16, 21).

	Czerny	School of Velocity, Vols. III and IV.
II.	Bach	Well-Tempered Clavier (Book I: No. 5 in D Major or No. 20 in A Minor).
		Well-Tempered Clavier (Book II: No. 12 in F Minor or No. 21 in B Flat Major).
	Galuppi	Sonata in D Major.
	Handel	Blacksmith Variations.
		Suite in G Minor (Chaconne).
	Scarlatti	Sonatas (any one).
III.	Beethoven . . .	Sonata Op. 2 No. 1 (last movement).
		Sonata Op. 14 No. 1 (first movement)
		Sonata Op. 14 No. 2 (first or last movement)
		Sonata Op. 79 (first, or second and third movements).
	Haydn	Sonata in E Flat Major (first, or second and third movements).
	Mozart	Sonata in F Major, K. 494 (first or last movement).
		Sonata in A Major, K. 331 (theme and variations).
		Concerto in G Major, K. 453 (first movement with Mozart cadenza).
IV.	Brahms	Intermezzi (Op. 76, No. 3 or 6; Op. 117, No. 1; Op. 118, No. 2; Op. 119, No. 2).
		Ballade Op. 118 No. 3.
	Chopin	Preludes (any two from: Nos. 1, 4, 9, 10, 15, and 22).
		Impromptu in A Flat, Op. 29.
		Bolero Op. 19.
		Nocturne in B Major, Op. 32 No. 1.
		Polonaise in C Sharp Minor Op. 26 No. 1.
	Dohnanyi . . .	March in E Flat Major.
	Liszt	Valse oubliée.
	Mendelssohn . .	Songs Without Words (Nos. 3, 18, or 34).
		Scherzo in E Minor.

	Schubert	Impromptu Op. 90 No. 2, in E Flat Major.
		Impromptu Op. 90 No. 4, in A Flat Major.
	Schumann . . .	Arabesque Op. 18.
		Romance in F Sharp Major.
V.	Albeniz	Sevillanas.
	Bartok	Hungarian Peasant Songs (any two).
		Mikrokosmos, Vol. V (any three).
	Debussy	Suite Bergamasque (Prelude or Minuet).
		Preludes, Vol. I (No. 12).
		Children's Corner (any one from Nos. 1, 2, 3, 4).
	How. Ferguson .	Five Bagatelles.
	Moussorgski . .	Gopak.
	Prokofieff . . .	Prelude Op. 12 No. 7.
	Saint-Saens . .	Bourree for the Left Hand Alone.
	Tcherepnine . .	Bagatelles Op. 5 (any two).

ORGAN

ORGAN 8

Scales: C, G, D, E, E flat, and F in both major and harmonic minor:

(a) manuals only, hands separately and together, through two octaves, in similar motion;

(b) pedals only, upper or lower octave, as required by the examiner.

Prepared Pieces: Candidates must have prepared the whole of either:
—List A: Buxtehude, Nun bitten wir (TEOM)[1]; Purcell-Fricker, A Purcell Suite (Rondeau in D Minor); Tallis, Gloria tibi trinitas (TEOM); *or*
—List B: Bach, Fughetta on "Gottes Sohn ist kommen" (XVIII[2], p. 41); Bach, Liebster Jesu, wir sind hier (XVIII, p. 72); John Stanley-Wall, Three Eighteenth Century Preludes (Trio).

Prerequisite: Piano 9.

ORGAN 9

Scales: All major, minor, and chromatic scales:

(a) manuals only, hands together, through three octaves, in similar and contrary motion, starting on either the lowest or highest note;

(b) pedals only through one octave.

Technical Studies: Nilson, Technical Studies in Pedal Playing — Part II, Section I.

Prepared Pieces: Candidates must have prepared either:
—List A: Bach, Erbam dich mein, o Herre Gott (XVIII, p. 35); de Grigny, Dialogue in F Major (AEFOM)[3]; John James, Echo Voluntary; *or*
—List B: Bach, Fugue in D Major (XII, p. 83); Mendelssohn, Sonata No. 1 (Adagio); Vaughan Williams, Three Preludes on Welsh Hymns (Rhosymedre).

[1] i.e. Treasury of Early Organ Music, Music Press Inc.

[2] Bracketed Roman numerals in the present section (ORGAN) refer to volume numbers in the recommended Novello edition of Bach's organ works.

[3] i.e. Anthology of Early French Organ Music, H.W. Gray.

ORGAN 10

Scales:
(a) Manuals: all major and minor (both forms), and chromatic scales, hands together through three octaves in similar and contrary motion. (Melodic minors in similar motion only.)

(b) pedals only: C, D flat, D, E flat, E, and F through two octaves.

Technical Studies: Nilson, Technical Studies in Pedal Playing — Part II, Section II, (Nos. 1-9 incl.). Part II, Section III, (Nos. 1-7 incl.).

Prepared Pieces: Candidates must have prepared either:
—List A: Bach, Concerto No. 1 (Vol. XI, p. 49); François Couperin, Elevation (AEFOM); Darius Milhaud, Neuf Préludes (any two) — Heugel; *or*
—List B: Bach, Nun komm der Heiden Heiland (Vol. XVII, p. 46); Handel, Concerto No. 13 (first and second movements); Healey Willan, Epilogue — Novello.

ORGAN 11

Scales: All major, minor (both forms), and chromatic scales played at varying degrees of speed:

(a) manuals only, hands together, at octave, third, and sixth for three octaves;

(b) pedals only, through one and two octaves;

(c) combined: one hand and pedals combined, in similar and contrary motion, from the octave or unison, through one and two octaves.

Technical Studies: Nilson, Technical Studies in Pedal Playing — Part II, Section II (Nos. 20-59 incl.), Part II, Section III (Nos. 8-28 incl.).

Prepared Pieces: Candidates must have prepared either:
—List A: Bach, Sonata No. 1 (first movement); Brahms, Chorale Prelude: Herzlich thut mich erfreuen; Herbert Howells, Master Tallis' Testament; *or*
—List B: Bach, Herr Jesu Christ, dich zu uns wend (XVII, p. 26); Benjamin Britten, Prelude and Fugue on a theme of Vittoria; Louis Couperin, Chaconne (AEFOM).

HARPSICHORD

HARPSICHORD 10. Introduction to the harpsichord. Explanation of mechanism, pedals, and registration. Study of special exercises and simple compositions. J. S. Bach, Selections from Anna Magdalena Bach Book; Byrd, Pavane; Purcell, Suite No. 1.

Prerequisite: Piano 10.

HARPSICHORD 11. Demonstration of tuning, re-stringing, and other minor adjustments. Study of ornamentation (reference: "True Art of Keyboard Playing", by C.P.E. Bach.)

Keyboard music from 1600 to 1800 including the English, French, German and Italian schools. Bach, Two-part Inventions; Couperin, Les Moissonneurs, and Soeur Monique; Gibbons, Preludium; Scarlatti, Pastorale.

VOICE

Note: A complete set of graded exercises, scales, arpeggios, and of sight-reading examples for Voice 7, 8, 9, 10 and 11 is published by the Conservatorium and can be obtained from the Secretary at a cost of 25¢.

VOICE 7

Studies: Vittorio Ricci, Beginner's Appendix — Twenty-Four Little Solfeggios (any three from Nos. 1-12).

Songs: Candidates will have to perform any two songs from the following list, as well as a song of their own choice:

Anon	The Holly and the Ivy — English Folk Song.
	My Love's an Arbutus — Irish Folk Song.
	The Little Red Lark — Irish Folk Song.
	Kitty of Coleraine — Irish Folk Song.
Brahms	Lullaby.
	Sunday.
	Sandman.
Dunhill	The Owl.
Grieg	Seven Children's Songs.
E. J. Moeran (arr.) .	The Jolly Carter.

Morley	It was a Lover and his Lass.
Mozart	Lullaby.
Schubert	Who is Sylvia.
	Lullaby.
Martin Shaw	The Cuckoo.
William Shield . . .	The Ploughboy.
H. Willan (arr.) . .	Early One Morning.

VOICE 8 N.B. Refer to note under VOICE, p. 2180.

Studies: Vittorio Ricci, Beginner's Appendix — Twenty-Four Little Solfeggios (any three from No. 13 — end).

Songs: Candidates will have to perform any two songs from the following list, as well as a song of their own choice:

Anon	Have You Seen but a Whyte Lillie Grow.
Arne	Care Flies from the Lad that is Merry.
	Where the Bee Sucks.
Brahms	My Maiden has Rosy Lips.
	Sapphic Ode.
	Vain Suit (Vergebliches Staendchen).
Dunhill	Little Lambs Where do You Sleep.
	The Milkmaid.
Franz	Dedication.
	For Music.
Giordani	My Beloved (Caro mio ben).
Grieg	I Love Thee.
	The First Primrose.
Handel	Alma mia.
	Angels Ever Bright and Fair.
	Slumber, Dear Maid (Largo).
	Where E'er You Walk.
Michael Head . . .	When Sweet Ann Sings.
Horn	I've been Roaming.
Ireland	The Holy Boy.
Lehmann	Oh! Bother, Sang the Thrush.
	The Cuckoo.
	The First Rose.
Liddle	An Old French Carol.
Mendelssohn	On Wings of Song.

Graham Peel	In Summer-Time on Bredon.
Purcell	Nymphs and Shepherds.
Schubert	Hedge Roses.
	Lindentree.
	To Music.
Somervell	A Shepherd's Cradle Song.
Stevens	Sigh no more, Ladies.
Eric Thiman	I Love all Graceful Things.
Verracini	Pastorale (arr. A.L.).
Vaughan-Williams . .	Linden Lee.

VOICE 9 N.B. Refer to note under VOICE, p. 2180.

Studies: Soprano, Tenor: Minoja, 45 Solfeggi facili — Litolff ed., No. 2554. Contralto, Baritone, Bass: Minoja, 24 Solfeggi facili — Litolff ed., No. 2555. Also: Concone, Lessons; Louis Lablache, Vocalises; Panseron, 42 Vocalises; Vittorio Ricci, 50 Solfeggios; Maurice Weynandt, Vocalises classiques faciles (high and low voice). Candidates will have to perform any three studies of a contrasting technical nature.

Prepared Pieces: Candidates will have to perform two songs and one operatic excerpt selected from the early Italian or French repertory. The selection may be made from among the following:

Songs:

Brahms, Elgar, Robert Franz, Grieg, Haydn, Ireland, MacDowell, Roger Quilter, Rachmaninoff, Schubert, Schumann, Cyril Scott, Peter Warlock.

Operatic Excerpts:

Caccini, Carissimi, Grétry, Lully, Mazzochi, Méhul, Monsigny, Provenzale. Also Gevaert's Collection, Nos. 32, 97, 98, 99, 123, 124, 125, 314, and 323.

VOICE 10 N.B. Refer to note under VOICE, p. 2180.

Studies: Continuation of work listed under Voice 9.

Prepared Pieces: Candidates will have to perform two songs and two operatic excerpts. Choice from among the following:

Songs:

Same as under Voice 9.

Opera and Oratorio:

Grétry, Gluck, Handel, Offenbach, Mozart, Paisiello, Piccini, Ambroise Thomas, and Weber. Also Gevaert's Collection, Nos. 34-48, 75, 139, 159, 160, 166, 170, 314, 323, 330, 331, 371, 384, and 389.

VOICE 11 N.B. Refer to note under VOICE, p. 2180.

Studies: Continuation and extension of work listed under Voice 10 (9).

Prepared Pieces: Candidates will have to perform two songs and two operatic or oratorio excerpts, as well as a selection of their own choice:

Songs:

German lied, French art song, English songs, and modern.

Opera and Oratorio:

For suitable selections consult the following: Bach, Arias; Handel, Arias; Handel, Twelve Songs from the Oratorios — Novello ed; Mendelssohn, Elijah (solo music) — Boosey ed.; Royal Operatic Album — Boosey ed. (published separately for each voice).

DEPARTMENT OF ORCHESTRAL INSTRUMENTS

VIOLIN

VIOLIN 5

Scales: G and A major and minor through two octaves. D major and minor, F major through one octave, one note to each bow. (Minor scales in melodic form only.)

Studies [1]*:* S-VM (No. 13); *or* W-E (No. 2 — with different bowings).

Prepared Pieces: One selection from the following list of pieces: Joseph Bloch, Valsette Op. 33 No. 2; Adam Carse, Marche Militaire; Gordon Jacob, A Bed-Time Song; Herbert Kingsley, Mazurka; Papini, Theme with Variations Op. 57; Rieding, Prière Op. 22 No. 4.

VIOLIN 6

Scales: G, A, and B major and minor through two octaves, four notes to each bow. (Minor scales in melodic form only.)

Arpeggios: G major and minor in first position only through two octaves: (a) one note to the bow; (b) three notes to the bow.

Studies: K-E (No. 1 — played with four different bowings); K-E (No. 7).

Prepared Pieces: One selection from the following list of pieces: Duncan-Rubbra, Four Easy Pieces (any two); Rieding, Concertino in B Minor, Op. 35 (in first position); Seitz, Concertino Op. 22 No. 5; Hans Sitt, Concertino in First Position Op. 93 (First or last movement).

[1] The complete list of recommended studies referred to in the violin and viola courses of the Junior Department is enumerated below. These works will be referred to in the text by means of the indicated letter symbols.

F-E — Fiorillo, Etudes.

K-E — Kayser, Etudes, Op. 20.

Kr-E — Kreutzer, Etudes.

M-TSS — Mazas, Thirty Special Studies, Op. 36.
R-C — Rode, Caprices.
S-VM — Sevcik, Violin Method Op. 6 — Part II.
S-E — Sitt, Etudes, Op. 32 — Bk. III.
W-E — Wohlfarth, Exercises, Op. 74.
W-FS — Wohlfarth, Foundation Studies — Bks. I and II.

VIOLIN 7

Scales: Two octaves of C and B flat major and minor in second position, D major and minor in third and fourth position. Minor scales are to be played in both forms. (a) One note to each bow; (b) three notes slurred to each bow.

Arpeggios: Two octaves in the keys of G and D major and minor: (a) one note to each bow; (b) three notes slurred to each bow.

Studies: K-E (Nos. 9 and 12); S-E (No. 42).

Prepared Pieces: One selection from the following list of pieces: Dancla, Fragment of a Sonata; R. Hofman, Sonatina No. 3 (first or last movement); Lully-Spalding, Melody; Portnoff, Concerto Op. 15; Seitz, Concerto No. 2.

VIOLIN 8

Scales: Two octaves of E and E flat major and minor (harmonic and melodic) in fourth and fifth position, F major and minor (harmonic and melodic) in fifth and sixth position: (a) one note to each bow; (b) three notes slurred to each bow.

Arpeggios: Two octaves in the keys of E flat, E, and F major and minor.

Studies: K-E (Nos. 13 and 16); M-TSS (No. 4).

Prepared Pieces: Pugnani-Moffat, Allegro entusiastico; Vivaldi: Concerto in A Minor, (first movement, or second and third movement).

VIOLIN 9

Scales: G, A, B flat, and B major and their tonic minors (harmonic and melodic) through three octaves. All scales to be played detached and three notes to a bow.

Arpeggios: G, A, B flat, and B major and minor, through three octaves: (a) one note to each bow; (b) three notes slurred to each bow.

Studies: K-E (Nos. 21 and 29); M-TSS (No. 7).

Prepared Pieces: One selection from the following list of pieces: Accolay, Concerto in A Minor; Seitz, Concerto No. 3 Op. 12 (first movement) and Concerto No. 4 (first movement) Sitt, Concertino Op. 31, (first or last movement)

VIOLIN 10

Scales: All major and minor (harmonic and melodic) scales through three octaves. Slurred and detached bowing.

Arpeggios: In all major and minor keys through three octaves, one note to a bow and slurred (one bow ascending and one descending.)

Studies: F-E (No. 15); Kr-E (No. 10); M-TSS (No. 18).

Prepared Pieces: Candidates must play the first piece and any one of the other four in the following list of pieces:

Handel, Six Sonatas (any one); Nardini, Concerto in E Minor; Tartini, Sonata in G Minor; Viotti, Concerto No. 23 (first or last movement).

VIOLIN 11

Scales: All major and minor (harmonic and melodic) through three octaves. Also the chromatic scales of C beginning on the G string, and E beginning on the D string, through two octaves. Slurred and detached bowing.

Arpeggios: In all major and minor keys, as well as dominant and diminished seventh chords through three octaves, one note to a bow, and slurred (one bow ascending and one descending).

Studies: One selection from each of the following:

F-E; Kr-E; R-C.

Prepared Pieces: Candidates must play one selection from each of the following groups of pieces:

I. Corelli-Leonard, La Folia; Kreutzer, Concerto No. 19; Rode, Concerto in A Minor, Op. 8; Veracini, Sonata in E Minor.

II. Bach, Concerto in E Major; Bach, Sixth Partita in E Major, for violin alone (first movement only).

VIOLA

VIOLA 7

Scales: C, D, and E major and minor melodic in two octaves, four notes to each bow.

Arpeggios: C major and minor in first position only, through two octaves: (a) one note to each bow; (b) three notes to each bow.

Studies: K-E (any one); W-FSl (any one).

Prepared Pieces: Reiding, Concertino in B Minor Op. 35 (viola transcription); *or* an easy selection from Old Masters For Young Players by Moffat-Palascho.

Prerequisite: Violin 6.

VIOLA 8

Scales:	F and E flat major and minor (harmonic and melodic) in second position, G major and minor (harmonic and melodic) in third and fourth positions, through two octaves: (a) one note to each bow; (b) two notes slurred to each bow.
Arpeggios:	C and G major and minor, through two octaves: (a) one note to each bow; (b) three notes slurred to each bow.
Studies:	K-E (any one); W-FS2 (any one).
Prepared Pieces:	R. V. Williams, Viola Suite; (Carol, Ballade and Musette) *or* selections from Old Master For Young Players by Moffat-Palascho.

VIOLA 9

Scales:	C, D, E flat, and E major and their tonic minors (harmonic and melodic) through three octaves. To be played detached and three notes to a bow.
Arpeggios:	C, D, E flat, and E major and their tonic minors through three octaves. To be played detached and three notes to a bow.
Studies:	K-E (Nos. 21 and 29); M-TSS (No. 7).
Prepared Pieces:	Grazioli, Sonata in F; *or* M. Marais, Five Old French Dances; *or* three selections from Album of Classical Pieces, adapted for the viola by Klengel.

VIOLA 10

Scales:	All major and minor (harmonic and melodic) scales through three octaves. Slurred and detached bowing.
Arpeggios:	All major and minor keys through three octaves, detached and slurred (one bow ascending and one descending).
Studies:	F-E (No. 15); K-E (No. 10); M-TSS (No. 18).
Prepared Pieces:	Handel, Sonatas (any one of the six); Mozart, Divertimento in C; *or* Sitt, Concerto Op. 68.

VIOLA 11

Scales:	All major and minor (harmonic and melodic) scales through three octaves. Also the chromatic scale of F beginning on C string, and of A beginning on G string, through two octaves. Slurred and detached.
Arpeggios:	All major and minor keys, as well as dominant and diminished seventh chords, through three octaves, detached and slurred (one bow ascending and one descending.)
Studies:	Three studies, one from each of the following: F-E; Kr-E; R-C.

Prepared Pieces: Ariosti, Sonata No. 2; *or* Handel, Concerto. Bruch, Romance; *or* P. Juon, Sonata; *or* Hindemith, Trauermusik.

CELLO

CELLO 7

Scales and Arpeggios: C, G, D, and F major; A and D minor, through two octaves.

Studies: L. Feuillard, Studies For The Young Cellist (Nos. 11 and 17). Lee, Forty Studies Op. 31, No. 4; *or* Whitehouse, Progressive Studies For The Violoncello (Nos. 11, 12, 16 and 18).

Prepared Pieces: Howard Ferguson, Five Irish Folk Tunes (A Jig, and Cradle Song).

CELLO 8

Scales: Arpeggios: E, A, D, A flat, E flat, and B flat major, and C sharp, F sharp, B, F, C, and G major, through two octaves.

Studies: Dotzauer, 113 Studies (Nos. 10 and 33); L. Feuillard, Studies For The Young Cellist (Nos. 35 and 51).

Prepared Pieces: W. H. Squire, Gavotte Op. 5. — Augener ed. No. 7704b. Also one additional piece, to be selected by the teacher.

CELLO 9

Scales and All major and minor, through two octaves: (a) detached; (b) slurred, two notes to a bow, and four notes to a bow.

Arpeggios: All major keys, through two octaves.

Studies: Dotzauer, 113 Studies (any two advanced studies); Merk, Studies (Nos. 1 and 2). Duport, Exercises (No. 9); *or* Whitehouse, Progressive Studies For The Violoncello (Nos. 19, 20, 22, 24, 25, and 27).

Prepared Pieces: Golterman, Concerto in G (first movement). Sammartini, Sonata in G. Also one additional piece, to be selected by the teacher.

CELLO 10

Scales: All major and minor melodic through three octaves: (a) detached; (b) slurred, two, four, or eight notes to a bow.

Arpeggios: All major and minor keys, through three octaves.

Studies: Duport: Any two studies.

Prepared Pieces: J. Barbirolli, Six Airs, arranged for 'cello (any two); *or* Goltermann, Concerto in B Minor (first movement); *and* Eccles, Sonata in G Minor.

CELLO 11

Scales:	All major and minor melodic scales through three octaves. Chromatic scale of F beginning on the C string, and of C beginning on the G string, through two octaves. Slurred and detached bowing.
Arpeggios:	All major and minor, through three octaves.
Studies:	J. L. Duport, Study No. 7, *or* Caprice. Franchomme, Studies (any one); *or* Grutzmacher, Studies (any one).
Prepared Pieces:	Bach, Suites (two movements from any one); Saint-Saens, Concerto in A Minor (first movement).

DOUBLE BASS

DOUBLE BASS 8

Scales:	F, G, B flat, A, E, and F sharp major, and F, E, G, A, B harmonic minor, in quarter notes and eighth notes, detached and bowed.
Arpeggios:	Same keys as for scales, through two octaves.
Studies:	Bille, Nanny, Simandl, — up to the second position.

DOUBLE BASS 9

Scales:	Same keys as Double Bass 8, in quarter notes, eighth notes, and triplets, eight notes to the bow, MM 70.
Arpeggios:	Same as Double Bass 8.
Studies:	Simandl, 30 Etudes. Also studies in Nanny and Findeisen. Findeisen's, Nanny's or Simandl's method up to the fourth position.
Prepared Pieces:	Beethoven, Ninth Symphony (recitativo bass part); Saint-Saens, Carnival of the Animals (The Elephant).

DOUBLE BASS 10

Scales:	All major and minor keys through two octaves, detached and tied by two, four, and six notes to the bow. Triplets, three and six notes to the bow, MM 70.
Arpeggios:	In all major and minor keys.
Studies:	Hrabe, Studies; — with different bowings using two, four, and six notes to the bow; Kreutzer, Studies.
Prepared Pieces:	Beethoven, Fifth Symphony (bass part); Brahms, Second Symphony (bass part); Verrismt, Concerto in B flat — Leduc Ed.

DOUBLE BASS 11

Scales:	All major and minor keys, through three octaves. Harmonics. Combination of rhythm and bowing.
Arpeggios:	In all major and minor keys.
Studies:	Kreutzer, Studies (two); Storch-Hrabe, Etudes.

Prepared Pieces: Beethoven, Ninth Symphony (bass part); Brahms, First Symphony (bass part); Dittersdorf, Concerto in E Major.

FLUTE

FLUTE 8. Production of tone, low C to high E. Major and minor scales to three sharps and three flats. Langey — Carl Fisher Tutors. Simple pieces with and without accompaniment.

FLUTE 9. Knowledge of chromatic range from low C to high A. Major and minor scales to five sharps and five flats. Arpeggios in the simple keys. Cavally, Melodious and Progressive Studies — Bk. I; Kohler, Duets; Moyse, Twenty-Four Short Melodious Studies with Variations. Easy pieces.

FLUTE 10. Knowledge of entire range. Scales, triads, and seventh chords. Chromatic scales. Cavally, Melodious and Progressive Studies — Bk. II; Gariboldi, Complete Scales; Gariboldi, Etudes mignonnes; Kohler, Fifteen Easy Exercises Op. 33 — Bk. I. Sonatas by Loeillet and other masters of the seventeenth and eighteenth century.

FLUTE 11. Broken triads and seventh chords, whole tone scales. Berbiguier, Etudes; Kohler, Twelve Exercises Op. 33 — Bk. II; Taffanel — Gaubert, Daily Finger Exercises and Progressive Studies. Sonatas by Handel, Loeillet, Mozart (Andante), Purcell, Telemann.

RECORDER

RECORDER 7. Major and minor scales to two sharps and flats. Duschenes, Daily Exercises; Guisbert, Method for the Recorder. Easy duets and pieces with piano.

RECORDER 8. Scales and arpeggios to three sharps and three flats. Duschenes, Daily Exercises. Duets by English and French masters of the seventeenth and eighteenth century. Sonatas by Pepusch, Purcell, Schickhardt, Valentino. Sammartini, Trio Sonatas. Study of the history of the flute family. Ability to play both soprano and alto recorders.

RECORDER 9. Fifteen Solos by Anonymous Masters of the Eighteenth Century (Schott). Duschenes, Daily Exercises. Handel, Sonatas; Loeillet, Sonatas; Loeillet, Trio Sonatas; Tate, Spielstucke; Telemann, Duets. Variations: Greensleeves to a Ground. Ability to play all four recorders.

RECORDER 10. Fifteen Solos by Anonymous Masters of the Eighteenth Century (Schott). Duschenes, Daily Exercises; Moenkemeyer, Hohe Schule. Extended knowledge of the recorder literature. Trio sonatas by Handel, Quantz, and Telemann. Bach, Brandenburg Concerto No. 4; Telemann, Concerto in G Minor. Ability to play in all clefs.

RECORDER 11. Moenkemeyer, Hohe Schule. Obbligato parts to Bach arias. Berkeley, Sonatina; Genzmer, Sonata; Telemann, Sonata in C Major. Bach, Brandenburg Concerto No. 2. Ability to conduct a recorder ensemble.

OBOE (ENGLISH HORN)

OBOE 8. Posture. Position of the reed. Action of the tongue. Scales. Barret, Forty-Two Progressive Studies for the Oboe; F. Gillet, Beginning of the Oboe.

OBOE 9. Scales, thirds and arpeggios. Barret, Four Sonatas and Sixteen Studies; F. Gillet, Twenty Minutes Practice.

OBOE 10. Scales. F. Gillet, Intervals and Staccato; Sellner, Exercises in Articulation; Sellner, Six First Duos for Two Oboes (Sonata Form).

OBOE 11. Brod, Twenty Studies; Sellner, Six Last Duos for Two Oboes. Handel, Sonata in C Minor.

CLARINET

CLARINET 7. Position of lips and fingers. Tone production. Scales up to one flat and one sharp. Diminished seventh arpeggios. Finger exercises derived from the diminished seventh arpeggio.

CLARINET 8. Chromatic scales. Major and minor scales. Major and minor thirds. Legato and staccato

CLARINET 9. Intervals of third, fourth, and fifth in major and harmonic minor keys. Chromatic exercises. Legato and staccato. C. Rose, Thirty-Two Studies for the Clarinet.

CLARINET 10. Chromatic exercises. Chromatic thirds and fourths. Whole tone scales. Transposition in A. Labanchi Method.

CLARINET 11. Transposition in both A and B; use of C clefs. Labanchi Method continued. Le Roy, Fifteen Concert Etudes from J. S. Bach; Louis de Santis, New Studies for the Clarinet. G. Marty, Fantasy for Clarinet and Orchestra; Weber, Concertino.

SAXOPHONE

SAXOPHONE 10. Major and minor scales and arpeggios. Chromatic scales. Klose, Etudes; Ben Verecken, Studies — Bk. I.

Prerequisite: Clarinet 9.

SAXOPHONE 11. Labanchi — Iasilli, Bk. I; Mule — Soussman, Vol. I. Advanced studies on chromatics. Transposition. Solos of intermediate difficulty.

BASSOON

BASSOON 8. Placement of reed in mouth. Action of tongue and lips. Holding the instrument. Practice of attacks, long tones, fingerings, scales.

BASSOON 9. Extension of range. Scale studies. Exercises on articulations. Weissenborn, Studies — Bks. I and II.

BASSOON 10. Tenor clefs. Major and minor scales up to four sharps and four flats. Intonation. Reed making. Bourdeaux, Premier Solo de Concours.

BASSOON 11. Completion of scale studies. Legato and staccato. Eugène Jancourt, Grande Etude pour Basson Op. 55; L. Milde, Twenty-Four Studies in All Keys Op. 24.

TRUMPET

TRUMPET 8

Scales and Arpeggios:	C, F, and G with their relative minors (harmonic), to be played slowly, both detached and slurred through one octave.
Studies:	Arban's Method (No. 25, p. 30, and No. 28, p. 32).

TRUMPET 9

Scales and Arpeggios: D, A, E, B, B flat, E flat, A flat, and D flat major, with their relative minors, to be played both legato and detached.

Studies: Arban's Method (Characteristic Study, No. 1, p. 285).

TRUMPET 10

Scales and Arpeggios: All major scales and arpeggios and their relative harmonic minors, to be played legato and detached.

Studies: Bousquet Studies — St. Jacome Method (No. 7 to be transposed to trumpet in A, a half tone down, and to trumpet in C, one tone up; also No. 17).

TRUMPET 11

Scales and Arpeggios: All major and minor (melodic and harmonic) scales and arpeggios to be played single — and double — tongued.

Studies: Charlier, Etudes for Trumpet (p. 5); Sachse, Etudes for Trumpet (No. 3 to be transposed to trumpet in A, C, D, E flat and F); St. Jacome, Method for Trumpet (No. 6 of Characteristic Studies).

FRENCH HORN

FRENCH HORN 11. Tone production, embouchure formation. Use of breath and tongue. Natural overtones, interval relations, arpeggio figures. Diatonic and chromatic passages, staccato and legato, in varying rhythms.

TROMBONE (TUBA)

TROMBONE 11. Correct stance: position of body and correct manner of holding instrument. Mouthpiece placement. Breath control. Attack and release of tone. All major and minor scales with tonic chords. Basic exercises in Arban and Sorgey Methods.

PERCUSSION

PERCUSSION 11. Snare drum: rudiments; rolls in various nuances. First part of Podemski Snare Drum Method. Mallets (pertaining to all phonetic instruments which are struck): major and minor scales. First part of William Dorn Method. One solo piece. Timpani: Goodman Method (first section).

HARP

HARP 8. Hand position. Basic scales and arpeggios. Grossi, Harp Method. Candidates must prepare three selections from the following list of pieces: Bach — Abrams, Two Minuets in G — in A Treasury of Easy Classics[1]; Grandjany, Bagatelles; Grandjany, Three Easy Pieces (Nocturne, Bagatelles); Hasselmans, Berceuse en sol mineur; Hasselmans, Trois pièces faciles (Rêverie); Maykapak-Abrams, The Blacksmith; Mozart — Abrams, Andantino, K. 236; Prokofieff — Abrams, Fairy Tale; Salzedo, Preludes Intimes (Nos. 1 and 3); Scarlatti — Abrams, Larghetto in D Minor — TEC.

HARP 9. Major scales through one and a half octaves. N. D. Bochsa, Forty Progressive Studies — Bk. I (any four studies).

Candidates must prepare three selections from the following list of pieces: Bach — Abrams, Polonaise — TEC; Bach — Abrams, Twelve Little Preludes (Pour le luth) — TEC; Beethoven — Abrams, Sonatina in G — TEC; Grandjany, Greetings; Grandjany, In a Dancing Mood — Harp Album; Grandjany, Le bon petit roi d'Yvetot; Grandjany, On an Old Christmas Song; Handel — Abrams, Prelude in G — TEC; Renié, Angelus; Renié, Première suite des six pièces (Auprès du ruisseau); Renié, Danse d'autrefois; Renié, Esquisse.

(1) Referred to henceforth as TEC.

HARP 10. Major and minor scales through three octaves. Major sixth and dominant ninth glissandi. Pozzoli, Studi di media difficolta per arpa (any two studies).

Candidates must prepare three selections from the following list of pieces: Beethoven, Six Easy Variations on a Swiss Air; Debussy — Grandjany, La Fille aux cheveux de lin; Donizetti — Schneker, Lucia di Lamermoor (Cadenza); Grandjany, Arabesque; Grandjany, Et ron, ron, ron, petit patapon; Grandjany, Noël provençal; Grandjany, The Pageant Begins; Kirchhoff — Grandjany, Aria and Rigaudon; Renié, Contemplation; Saint-Saens, Fantaisie; Tournier, Au matin; Zabel, Marguerite douloureuse.

HARP 11. Diminished seventh glissandi. Naderman, Sept sonates progressives (any two sonatas).

Candidates must prepare three selections from the following list of pieces: Bach-Grandjany, Largo; Busser, Pièce de Concert; Couperin-Salzedo, Giga; Debussy-Renié, First Arabesque; Granados-Abrams, The Last Pavane; Grandjany, Aria in the Classical Style for Harp and Strings (or Organ); Grandjany, Automne; Grandjany, Old Chinese Song; Handel-Grandjany, Sarabande; Hasselman, La Source; Hasselmans, Patrouille; Pierné, Impromptu-Caprice; Rousseau, Variations pastorales sur un vieux Noël; Salzedo, Suite of Eight Dances (Seguidilla and Rumba); Schobert-Grandjany, Andante; Tournier, Berceuse russe; Tournier, Féerie; Tournier, Images, Premier suite (Lolita, La Danseuse).

LOCAL CENTRES

The following places have been adopted as centres for public Examinations in Music; others will be added as necessity requires, but in all cases the establishment of a centre depends upon a sufficient number of candidates applying. All examinations for Certificates in the Local Grades, as well as those for the A. Mus. are held at these centres:

BURY	*Hon. Secretary:* Mrs. F. H. Harrison, Bishopton.
CAMPBELLTON	*Hon. Secretary:* Miss Laura Alford.
CAMPBELL'S BAY	*Hon. Representative:* Rev. J. J. Hogan. *Hon. Secretary:* Sister Frances Teresa, St. Joseph's Convent.
CHAPEAU	*Hon. Representative:* Rev. Dean J. Kimpton, St. Joseph's Convent. *Hon Secretary:* St. Joseph's Convent.

CHARLOTTETOWN	*Hon. Representative:* H. H. Shaw, Esq., B.Sc. *Hon. Secretary:* Miss E. Lillian McKenzie, Mus.B., F.M.C.M. (McGill), Conway Apts., Orlebar St.
COOKSHIRE	*Hon. Secretary:* Miss E. J. Ball.
EDMONTON	*Hon. Representative:* Dean Robert Hardy, University of Alberta. *Hon. Secretary:* Mrs. O. J. Walker, L.Mus., (McGill), 11103 Saskatchewan Drive.
FERNIE	*Hon. Representative:* Sydney Crookes, Esq. *Hon. Secretary:* Mrs. A. White, Cranbrook.
FREDERICTON	*Hon. Representative:* The Very Reverend Spencer C. Gray, The Deanery. *Hon. Secretary:* R. W. Mott, Esq., L.Mus. (McGill), 374 Charlotte St.
GRANBY	*Hon. Secretary:* Mrs. K. Thierer, 3 Elgin St.
HALIFAX	*Hon. Representative:* The Rev. S. H. Prince, University of King's College. *Hon. Secretary:* Miss M. H. Boak, 78 Morris St.
MONCTON	*Hon. Representative:* The Rev. J. A. Ramsay, D.D., The Manse, Alma St. *Hon. Secretary:* Miss Marion Murray, 185 Mountain Road.
MOOSE JAW	*Hon. Representative:* S. R. Stephens, Esq., City Librarian, Public Library. *Hon. Secretary:* Academy of Sion.
PETERBORO	*Hon. Representative:* John T. Donaldson, Esq., 223 Crescent St. *Hon. Secretary:* F. G. Mann, Esq., F.M.C.M., 203 London St.
QUYON	*Hon. Secretary:* Mrs. Evelyn M. Little, Shawville.
REGINA	*Hon. Representative:* Regina Conservatory of Music. *Hon. Secretary:* Mrs. R. H. Johnston, L.Mus. (McGill), Darke Hall.
RIVER JOHN	*Hon. Secretary:* Mrs. Harold Lisson.
SAINT JOHN	*Hon. Representative:* Rev. A. E. Coleman, B.A., 50 Orange St. *Hon. Secretary:* Dr. H. C. Dunlop, L.Mus., 75 Orange St.
SHERBROOKE	*Hon. Secretary:* Wright W. Gibson, Esq., M.A., F.M.C.M., High School.

SMITHS FALLS	*Hon. Secretary:* A. W. Lucas, Esq., L.Mus., Box 85.
SYDNEY MINES	*Hon. Secretary:* H. A. Briers, Esq., F.M.C.M., Box 438.
TRURO	*Hon. Representative:* C. G. Mosher, Esq., M.A., LL.D. *Hon. Secretary:* Miss Bertha Dunn, L. Mus., F.M.C.M. (McGill), 11 Victoria St.
VICTORIA	*Hon. Secretary:* R. H. Cox, Esq., L.Mus. (McGill),
VANCOUVER ISLAND	1462 Fort St.

McGill University

Montreal

Faculty of Divinity

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

McGill University

FACULTY OF DIVINITY

ADMINISTRATIVE OFFICERS

THE UNIVERSITY—

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

D. L. Thomson, Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal*

William Bentley, C.G.A., F.C.I.S. — *Bursar*

T. H. Matthews, M.A., LL.D. — *Registrar*

Richard Pennington, B.A., Lib.Dip. — *University Librarian*

G. A. Grimson, B.Com. — *Comptroller*

FACULTY OF DIVINITY—

_____ — *Dean of the Faculty*

Kenneth H. Rogers, M.A., Ph.D. — *Secretary of the Faculty*

A complete list of the teaching staff of the University, including the Faculty of Divinity, is printed as a separate Announcement, which may be obtained from the Registrar's Office.

The Faculty of Divinity, its theological library and reading room, chapel, classrooms, auditorium, common rooms, and office are in Divinity Hall, 3520 University Street.

Daily services are held in the Chapel during the session open to all members of the University at times to be intimated on the notice-boards.

CALENDAR FOR THE SESSION 1957-58

1957

September 16th, Monday ..... Supplemental examinations begin.
September 24th, Tuesday, *September 25th, Wednesday* ..... Registration.
September 26th, Thursday ..... Lectures begin.
October 7th, Monday ..... Fall Convocation.
November 11th, Monday ..... Remembrance Day Service
December 21st, Saturday ..... Last day of lectures

1958

January 6th, Monday ..... Examinations begin.
January 13th, Monday ..... Second term begins.
February 14th, Friday, *February 15th, Saturday* ..... Mid-term holidays.
April 4th, Friday to April 7th, Monday incl. ..... Easter Vacation.
April 19th, Saturday ..... Lectures end.
April 23rd, Wednesday ..... Examinations begin.
May 28th, Wednesday ..... Convocation.

TEACHING STAFF OF THE FACULTY OF DIVINITY

Dean of the Faculty

GEORGE BRADFORD CAIRD, B.A. (Cantab.), M.A., D.Phil. (Oxon.)
Professor of New Testament Language and Literature

ROBERT HENRY LAWSON SLATER, M.A. (Cantab.), Ph.D. (Columbia)
Professor of Systematic Theology

WILFRED CANTWELL SMITH, B.A. (Tor.), M.A., Ph.D. (Princeton)
W. M. Birks Professor of Comparative Religion

STANLEY BRICE FROST, B.D. (Lond.), M.Th., Dr. Phil. (Marburg)
Professor of Old Testament Language and Literature

JAMES SUTHERLAND THOMSON, M.A. (Glasgow), D.D. (Glasgow, Emmanuel, Toronto), LL.D. (Washington, Queen's, Toronto, McGill, McMaster, Manitoba, Alberta, Saskatchewan), F.R.S.C. (on leave of absence).
Professor of Philosophy of Religion (Post-retirement)

HENRY HORACE WALSH, B.D. (General Synod), M.A. (King's), S.T.M. (General Theological Seminary), Ph.D. (Columbia)
Associate Professor of Church History

KENNETH HERBERT ROGERS, L.Th. (Wycliffe), M.A., Ph.D. (Tor.)
Lecturer in the Psychology of Religion

R. KENNETH NAYLOR, L.Th. (Montreal Diocesan Coll.), B.A.
Lecturer in Christian Ethics

JOHN CHARLES KIRBY, B.D. (General Theological Seminary, New York), B.A.
Lecturer in New Testament

THE FACULTY OF DIVINITY

GENERAL

The Faculty was created by the Senate of the University in 1948, following on negotiations with the Montreal Diocesan College, the United Theological College (Montreal) and the Joint Board of Theological Colleges, affiliated to McGill University. While admission is open to any student, the Faculty operates in immediate association with the aforementioned colleges, which accept the courses of instruction in respect of their candidates for ordination. At the same time, the Colleges preserve their separate identity and provide corporate life, residential accommodation, courses of practical training, also bursaries and financial assistance for their students.

The Faculty of Divinity offers a three-year course leading to the degree of Bachelor of Divinity (B.D.) general or with honours. The basic entrance requirement is a Bachelor's degree from a recognized university, and there are also prerequisites in certain subjects, as noted in the following pages. In co-operation with the Faculty of Graduate Studies and Research, the degrees of Master of Theology (S.T.M.) and Doctor of Philosophy (Ph.D.) are offered. Particulars will be found on page 2316.

The B.D. course provides instruction in the Biblical, Historical, and Theological subjects common to the curricula of theological colleges of the principal churches of Canada, other than the Roman Catholic. Additional training in Practical and Pastoral Theology and in subjects for which a distinctive form of training is required by a particular Communion, will be provided by the participating theological colleges. The Montreal Diocesan Theological College of the Anglican Church of Canada and the United Theological College of the United Church of Canada also grant their own diplomas on completion of the course for ordination. Students who belong to other Communions should consult their own ecclesiastical authorities before applying to one or other of these colleges for training in the subjects which are required of ordination candidates, but which do not form part of the B.D. course in the Faculty of Divinity.

Any qualified student may apply for admission to the B.D. course.

The Faculty also provides instruction, as indicated above, for all ordination candidates who are enrolled in the participating colleges, but who, through lack of qualification in pre-requisite studies, are not eligible to become candidates for the B.D. degree. They will be admitted as Partial Students (see page 2307).

REQUIREMENTS FOR ADMISSION

A Bachelor's degree from a recognized university, preferably the B.A., is the basic prerequisite.

It is also normally required that the following courses shall have been completed in the Faculty of Arts and Science of McGill University, or their equivalent in another recognized university:

Courses are designated as in the Announcement of the Faculty of Arts and Science.

Latin:	Senior Matriculation Latin, or Latin 2 or 11.
Greek:	Junior Matriculation Greek, or Greek 2, which may be carried concurrently with the first year of the B.D. course.
Philosophy:	Philosophy 2 and one additional course.
History:	One course in Ancient History, and one course in European History.
English:	English 100, and one additional course.
Natural Sciences:	One course.
Social Sciences:	A course in one of the following: Economics Political Science Psychology Sociology Social Anthropology

Applicants who have not completed all the above subject requirements, or who are in doubt as to the equivalent recognition of courses taken elsewhere than at McGill, should consult the Dean. It may be necessary for them to take certain qualifying courses for admission to the B.D. course. The Dean may exercise his discretion in the case of students of demonstrated ability whose course for the Bachelor's degree has not followed the normal pattern outlined above.

Students who intend to enter the Faculty of Divinity after completing an Arts course are strongly advised to include the above subjects. They should also consult with the Dean of the Faculty of Divinity, who will advise them concerning the most suitable course of studies.

ADVANCED STANDING

Admission to advanced standing in the B.D. course may be granted to suitable applicants from recognized institutions, but in no case will the B.D. degree be granted after less than two years' intramural study in the Faculty of Divinity.

APPLICATION AND REGISTRATION

Intending students of the Faculty of Divinity must submit to the Dean an application with supporting documents by September 16th, 1957. Requests for the necessary application forms should be sent to the Dean's Secretary, Divinity Hall, 3520 University St., Montreal 2.

Registration will take place at the Office of the Dean on Tuesday, September 24th and Wednesday, September 25th, 1957. Students registering late will be required to pay a special fee for late registration unless exempted by the Registrar for sufficient reasons.

CLASSES OF STUDENT

(i) **Regular** — Students who are admitted to the B.D. course and who are taking the full number of lecture courses of the year in which they are enrolled.

(ii) **Limited** — Students who are admitted to the B.D. course, but who are unable to undertake the full work of the B.D. curriculum concurrently with the courses in Practical Theology provided by the colleges for candidates for ordination, or who, not being ordination candidates, have good reason to ask for extension. Such students may, with the Dean's permission, extend their course for the B.D. degree beyond the normal period of three years.

(iii) **Partial** — Students who are not registered as proceeding to the B.D. degree, but who can satisfy the Dean and Faculty of their ability to do the work of the courses to which they seek admission. Ordination candidates registered in one of the participating colleges, and who are not eligible for entrance to the B.D. course, will be advised by the Principal of the College as to the courses of the B.D. curriculum to which they should seek admission as Partial students.

(iv) **Graduate** — Students enrolled in the Faculty of Graduate Studies and Research who are candidates for the degrees of S.T.M. and Ph.D.

FEES

(1) Regular, Limited, and Partial students in the Faculty of Divinity who are candidates for ordination registered in one of the participating theological colleges, will be exempted from payment of tuition fees, in view of the contribution of the colleges to the support of the Faculty. Such Regular and Limited students will, however, be required to pay the annual Health Service fee, $7.00 (if in residence, $10.00), Athletics fee, $15.00, and the Students' Society fee, $15.00.

(2) The University fee for all other full-time students will be $400.00 a session, and includes all the regular charges of the University for tuition, registration, health service, libraries, sports, games, graduation and Students' Society fee.

(3) Limited students, and Partial students, not candidates for ordination, who are taking one or two courses, will pay $100.00 for each full course, $5.00 Grounds fee, and $5.00 to the Students' Society ($3.50 for the use of the McGill Union, and $1.50 for the McGill Daily). If taking three or more courses, such students will pay the Health Service fee of $7.00 (if in residence, $10.00), the Athletics fee of $15.00, and the full Students' Society fee of $15.00.

(4) Partial students who are candidates for ordination registered in one of the participating theological colleges, will be exempted from payment of tuition fees, but will pay the extra fees listed in (3) above.

(5) Fees for Graduate students are shown in the Announcement of the Faculty of Graduate Studies and Research. Particulars may be had on application.

For further information about the payment of fees, consult the General Information Pamphlet included with this Announcement.

EXAMINATIONS

Mid-sessional examinations are held in January for half-courses completed in the first term, and interim tests in full courses may be held at the same time. Final sessional examinations are held late in April.

The pass mark in all examinations is 50%. First class standing is 80% and over, second class standing 65% to 79%, and third class standing 50% to 64%.

FAILURES AND SUPPLEMENTAL EXAMINATIONS

A student who has failed in a mid-sessional or sessional examination may apply for permission to write a supplemental examination in the following September. A student who has failed in more than two full courses must withdraw from the Faculty or, with the Dean's permission, repeat his year.

CONDITIONED STANDING

A student who lacks not more than one full course of the entrance requirements to any year of the B.D. course, may be admitted by the Faculty with conditioned standing. He is not permitted to carry this condition for more than one session.

CURRICULUM FOR THE GENERAL B.D. DEGREE (1957-1958)

Note: *Second and Third years* take the following classes together in alternate years, viz. *Old Testament*, *New Testament*, *Systematic Theology*, and *Philosophy of Religion 2A*. For details of courses see page 2312 *et seq.*

FIRST YEAR

Church History.....3 hours, session
Old Testament.....3 hours, session
New Testament.....3 hours, session
Philosophy of Religion.....3 hours, first term
Systematic Theology.....3 hours, session
Psychology of Religion.....3 hours, second term

Total lecture periods: 15 hours per week, first term
15 hours per week, second term

SECOND YEAR

Old Testament.....3 hours, first term
New Testament.....3 hours, session
Church History.....3 hours, session
Systematic Theology.....3 hours, second term
Comparative Religion.....3 hours, session

Total lecture periods: 12 hours per week, first term
12 hours per week, second term

THIRD YEAR

Old Testament.....3 hours, first term
New Testament.....3 hours, session
Systematic Theology.....3 hours, second term
Christian Ethics.....3 hours, first term
Philosophy of Religion.....2 hours, second term
Church History.....1 hour, second term

Total lecture periods: 9 hours per week, first term
9 hours per week, second term, with additional tutorials

The presentation of an acceptable thesis embodying the results of specialized study is a requirement for the B.D. degree. (See Regulations, page 2315.)

DEGREE OF B.D. WITH HONOURS

The degree of Bachelor of Divinity *with honours* will be conferred on candidates who fulfil the requirements.

The purpose of the *honours* award is to recognize the outstanding attainments of qualified candidates who complete specially prescribed courses of study and pass the necessary examinations *on a high standard.* The special courses are designed to provide an opportunity for able and promising students to become well trained on the basis of particular interest and capacity in one of the theological disciplines.

Candidates for the degree with honours are usually also students in preparation for ordination to the Holy Ministry; consequently, in the curriculum prescribed for the award of honours, there is no modification of the broad general training in all the theological disciplines, which is necessary for the future vocation of such candidates, and which is prescribed by ecclesiastical regulations. The Honours course attempts to combine the interests of special scholarship with those of general theological education. The standard of attainment must be high alike in the general curriculum and in the *honours* subject.

REGULATIONS FOR THE B.D. WITH HONOURS

(1) Honours may be awarded in any one of the following six departments of study—Old Testament, New Testament, Church History, Systematic Theology, Philosophy of Religion, Comparative Religion.

(2) A candidate must apply for admission to an Honours course in one of the six departments of study, which will then be designated as his *major* subject. He will also be required to undertake special studies in one other related department, which will be designated as his *minor* subject.

He must undertake advanced studies in his *major* subject during the Second and Third years of his course, and in his *minor* subject during the Second or Third year (normally the latter).

At the close of the Third year, the candidate must submit the thesis required of all candidates for the B.D. degree, but it must be connected with his major subject and must be of a more substantial character than for the ordinary degree. (See Regulations for B.D. thesis, page 2315.)

(3) A candidate should apply for admission to an Honours course normally at the completion of the First year of his studies for the B.D. degree. To be qualified, he must have obtained during his First year:

(a) A high general average attainment in all subjects (not less than 70%).

(b) *First Class* or *high Second Class* standing in his major subject.

A candidate for Honours in Old Testament must have taken a full course in Hebrew during his First year or previously, and have attained at least second-class standing in that language. A prospective candidate for Honours in Old Testament who has completed the requirement in Hebrew before entering his First year will be given a tutorial course (including Hebrew) in lieu of Hebrew I.

Admission to an Honours course will be granted by the Faculty on the recommendation of the professor whose department of study is selected as the major subject.

(4) A candidate must continue to maintain the qualifying standard of achievement (see previous regulation) during his Second and Third years. If he fails to do so, special adjustments may be made to permit him to complete requirements for the general degree, provided that in the opinion of the Faculty his attainments are satisfactory.

(5) The advanced courses of study in the major and minor subjects will be prescribed and directed by the professors concerned and may consist of work additional to the studies required by candidates for the general degree or of special work of an advanced character substituted for the general course.

A candidate must also attend lectures and pass the prescribed examinations in all the subjects (other than his major and minor subjects) which are required for the general B.D. degree, except as follows:

(a) Reading courses in each of two half-courses (normally of the Third year) in the general curriculum may be substituted for attendance at the lectures, these courses to be followed by a qualifying paper, which may consist of an essay or an examination, at the discretion of the professor concerned.

(b) When the candidate has selected Church History or Comparative Religion as his major subject, or when the combination of major and minor subjects creates a specially heavy assignment of prescribed studies, he may apply to be exempted from one half-course of the general curriculum (usually in the Third year), but, in no case can this exemption be granted from courses in the New Testament or in Systematic Theology.

(6) The award of Honours will be made by the Faculty on the recommendation of the Dean and the professor of his major subject, who will base their judgment on the candidate's whole record during the entire course of study in the Faculty of Divinity.

DESCRIPTION OF COURSES

OLD TESTAMENT

Professor S. B. FROST

OLD TESTAMENT 1a—AN INTRODUCTION TO OLD TESTAMENT STUDIES

The nature, origins, and transmission of the Old Testament literature; the English versions; geographical and historical background; Hebrew social and religious origins; composition of the Pentateuch; the early chapters of Genesis.

First year .....3 hours, first term

OLD TESTAMENT 1b—OLD TESTAMENT PROPHECY

The rise of prophecy and development of the Prophetic Literature; the emergence of Apocalyptic writings.

First year .....3 hours, second term

OLD TESTAMENT 2a—POETIC AND WISDOM LITERATURE

The nature of Hebrew poetry; study of the Books of Psalms, Job, Proverbs, and Ecclesiastes. (*Not given in 1957-58.*)

Second or Third year (alternately) .....3 hours, first term

OLD TESTAMENT 3a—OLD TESTAMENT RELIGION AND THEOLOGY

The historical development of Hebrew religion and the significance of its institutions and theological terms. (*Given in 1957-58.*)

Second or Third year .....3 hours, first term

HEBREW 1—INTRODUCTORY HEBREW GRAMMAR AND COMPOSITION

Reading of selections from Genesis.

Any year .....3 hours, session

HEBREW 2—GRAMMAR AND SYNTAX

Reading of Ruth and Amos.

Any year .....3 hours, session

NEW TESTAMENT

Professor G. B. CAIRD

Lecturer J. C. KIRBY

NEW TESTAMENT 1—INTRODUCTION TO NEW TESTAMENT STUDIES

The political and religious background; the canon, text, and versions of the New Testament; the Synoptic Problem; text of the Synoptic Gospels and the Acts of the Apostles.

First year .....3 hours, session

NEW TESTAMENT 2b—THE LIFE AND TEACHING OF ST. PAUL

Introduction to the Pauline Epistles, with exegesis of selected portions in Greek; introduction to the Pastoral Epistles. (*Not given in 1957-58.*)

Second or Third year (alternately) .....3 hours, second term

NEW TESTAMENT 3—THE EPISTLE TO THE HEBREWS; THE GENERAL EPISTLES, AND THE JOHANNINE LITERATURE

Introduction, with exegesis of selected portions in Greek. (*Given in 1957-58.*)

Second or Third year .....3 hours, session

CHURCH HISTORY

Associate Professor H. H. WALSH

CHURCH HISTORY 1a—THE FIRST FIVE CENTURIES

The world in which the Church was founded, and the Christian development.

First year.....3 hours, first term

CHURCH HISTORY 1b—THE CHURCH IN THE MIDDLE AGES

From the Teutonic invasions to the Reforming Councils.

First year.....3 hours, second term

CHURCH HISTORY 2a—THE REFORMATION AND THE COUNTER-REFORMATION TO THE 18TH CENTURY

A brief survey of the Eastern Churches and of missionary activity during this era will be included.

Second year.....3 hours, first term

CHURCH HISTORY 2b—HISTORY OF THE MODERN CHURCH

European Christianity from the 18th Century; the world-wide expansion of Christianity with special reference to the Ecumenical Movement.

Second year.....3 hours, second term

CHURCH HISTORY 3b—CANADIAN CHURCH HISTORY

A study of the origin and development of the various branches of the Christian Church in the Canadian setting.

Third year.....1 hour, second term

SYSTEMATIC THEOLOGY

Professor R. H. L. SLATER

SYSTEMATIC THEOLOGY 1a—HISTORICAL INTRODUCTION TO CHRISTIAN THEOLOGY

Lectures illustrating the development of Christian thought by reference to selected works of the great theologians of the past.

First year.....3 hours, first term

SYSTEMATIC THEOLOGY 1b—THE STRUCTURE OF CHRISTIAN THEOLOGY

The Doctrine of Man and the World; the Doctrine of God—Creation and Providence.

First year.....3 hours, second term

SYSTEMATIC THEOLOGY 2a—THE STRUCTURE OF CHRISTIAN THEOLOGY (continued)

The Doctrine of Redemption—the Person and Work of Jesus Christ. (*Not given in 1957-58.*)

Second or Third year (alternately).....3 hours, first term

SYSTEMATIC THEOLOGY 2b—THE STRUCTURE OF CHRISTIAN THEOLOGY (continued)

The Doctrine of Sanctification—the Holy Spirit, Grace, Eternal Life. (*Not given in 1957-58.*)

Second or Third year (*alternately*).....3 hours, second term

SYSTEMATIC THEOLOGY 3b—THE STRUCTURE OF CHRISTIAN THEOLOGY (continued)

The Holy Trinity: The Church, the Ministry, and the Sacraments. (*Given in 1957-58.*)

Second or Third year.....3 hours, second term

PHILOSOPHY AND PSYCHOLOGY OF RELIGION

Professor J. S. THOMSON
(on leave of absence for one year)

Lecturer K. H. ROGERS

PHILOSOPHY OF RELIGION 1a—INTRODUCTION TO THE PHILOSOPHY OF RELIGION

An introductory study of the nature of religious belief with an examination of its validity. Religious faith considered as the basis for a philosophy of life and an interpretation of the world, including moral and other values.

First year.....3 hours, first term

PHILOSOPHY OF RELIGION 2a—A STUDY OF THE PROBLEMS OF RELIGIOUS FAITH

The problems of pain and evil. An examination of the relation of religious beliefs to science, secularism, and materialism. (*Not given in 1957-58.*)

Second or Third year (*alternately*).....3 hours, first term

PHILOSOPHY OF RELIGION 3b—RELIGIOUS FAITH IN THE CONTEMPORARY WORLD

An examination of religion in relation to movements in the current moral and intellectual environment.

Third year.....2 hours, second term

PSYCHOLOGY OF RELIGION 1b — INTRODUCTION TO THE PSYCHOLOGY OF RELIGION

A psychological analysis of the various forms of religious experience, including emotion, belief, and conduct. The place of religion in human life, related to the general outline of our nature and abilities as portrayed by psychological study. The nature of religious education, conversion, prayer, worship, and persuasion. A study of mysticism. The place of religion in the psychiatric treatment of mental and moral illness.

First year.....3 hours, second term

COMPARATIVE RELIGION

Professor W. C. SMITH

COMPARATIVE RELIGION 2a—RELIGION IN THE ORIENT

A prefatory general survey of the field. After reference to the religion of pre-historic man and of modern non-literate societies, synoptic introductions will be given to the great religions of the Orient, ancient and modern.

Second year.....3 hours, first term

COMPARATIVE RELIGION 2b—RELIGION IN THE ORIENT (continued)

A fuller study of one of the Oriental religions: its teachings, institutions, and cultural achievements, so as to understand both the historical development and what the religion means to its adherents to-day.

Second year.....3 hours, second term

Honours courses will be offered in Comparative Religion proper, philosophic and systematic. Further, instruction can be arranged in the basic languages of Islam (Arabic, Persian, Urdu) and, at an elementary level, of Hinduism (Hindi and Sanskrit, the latter in the Faculty of Graduate Studies, Department of Classics).

CHRISTIAN ETHICS

Lecturer R. K. NAYLOR

CHRISTIAN ETHICS 3a—AN INTRODUCTORY STUDY

Christian ethical principles and their application to present day problems.

Third year.....3 hours, first term

REGULATIONS FOR THE SUBMISSION OF THE B.D. THESIS

(1) The presentation of an acceptable thesis is a requirement for the award of the degree.

(2) Preparation of the thesis is to be regarded as an integral part of the course of studies required for the degree, whereby the candidate is given an opportunity to devote himself with personal originality and initiative to the study of some particular subject and thus to attest his worth and capacity as a responsible scholar. The thesis must be the candidate's own original work, and should display a real grasp of the selected subject, with an ability to organize the necessary material and to present it in an effective manner.

(3) The thesis shall deal with some special aspect of theological study, and its subject should be chosen in consultation with the professor who is responsible for the department of study within which the proposed subject falls. When the subject is related to two departments, both professors should be consulted. Thereafter the subject must be approved by the Faculty.

Normally the subject of the thesis should be chosen at the end of the Second year of the course. Thereafter, the candidate should confer from time to time as directed on the progress of the work with the professor or professors concerned, but it should be understood that the thesis cannot be approved as acceptable either in its parts or as a whole until the complete thesis is finally presented to the Faculty.

(4) Normally, a thesis presented for the general degree should contain from 10,000 to 15,000 words. A thesis for the degree with Honours should be of a more substantial character in matter and length, and should contain from 15,000 to 20,000 words. An analytical table of contents and a bibliography should be displayed. Authorities and references should be precisely cited in foot-notes. Excessive quotation should be avoided. It is essential that literary form and style should be of a worthy standard.

(5) The thesis must be written during the candidate's final year of attendance, and must be submitted not later than March 31st, of the year in which the final examinations are written.

If the thesis is rejected as unsatisfactory, the candidate may apply before June 30th of the same year for permission to re-submit it and, if such permission is granted by the Faculty, a date for re-submission will be prescribed.

GRADUATE STUDIES

The Faculty of Graduate Studies and Research directs and controls all courses leading to higher degrees and recommends candidates for these degrees. This arrangement includes graduate studies and research in Divinity.

The Faculty offers courses leading to the degrees of Master of Theology (S.T.M.) and Doctor of Philosophy (Ph.D.). Candidates must be graduates in Arts and must also hold the degree of B.D. or its equivalent. Full time residence at the University for S.T.M. is one full academic session; for the Ph.D. is three sessions. Part time residence may be regarded as equal to one half-session. Candidates are required to perform work and pass examinations on an appropriate standard in assigned courses. A candidate must present a thesis on some topic connected with his major subject.

Full regulations and other information will be found in the Announcement of the Faculty of Graduate Studies and Research, which may be obtained on application to the Office of the Dean.

The following graduate courses are offered, but it should be understood they are not all available in any given academic session. As far as possible, students will be assigned to courses in the Faculty of Divinity or other Faculties that meet their particular needs.

61.	THE DOCTRINE OF THE TRINITY	*Professor Slater*
65.	THE NATURE AND FUNCTION OF THE CHURCH	*Professor Slater*
66.	APPLIED PSYCHOLOGY OF RELIGION	*Dr. Rogers*
73.	THE SEPTUAGINT AND THE NEW TESTAMENT	*Professor Caird*
74.	ST. PAUL'S EPISTLE TO THE ROMANS (Text, Exegesis and Theology)	*Professor Caird*
84.	THE QUMRAN COMMUNITY	*Professor Frost*
90.	INTRODUCTION TO CANADIAN CHURCH HISTORY	*Professor Walsh*
91.	PROBLEMS OF CHURCH AND STATE	*Professor Walsh*
101.	HISTORICAL DEVELOPMENT OF ISLAMIC THEOLOGY	*Professor Smith*
102.	ISLAM IN THE MODERN WORLD	*Professor Smith*
103.	SEMINAR IN COMPARATIVE RELIGION	*Professor Smith*
104.	THE SIGNIFICANCE OF "NIRVANA"	*Professor Slater*
105.	CHRISTIANITY AND BUDDHISM	*Professor Slater*

Note: Graduate Courses in Philosophy of Religion will be announced later.

BURSARIES, SCHOLARSHIPS, AND PRIZES

1. AWARDED BY THE FACULTY OF DIVINITY

W. M. Birks Scholarships—Three W. M. Birks scholarships are awarded by the Faculty of Divinity, viz:

Entrance Scholarship—$250, to be awarded to the most outstanding and promising student entering the First year of the B.D. course. Applications must be made by 15th June to the Dean of the Faculty of Divinity.

Two Scholarships, each of $100, to be awarded to the most outstanding students at the end of the First and Second years of the B.D. course respectively. They will be tenable during the Second and Third years of attendance.

N.B. In addition to the above grants, students of participating Churches receive free tuition.

W. M. Birks Fellowship—$1,200, to be awarded to the most outstanding student who applies for the S.T.M. course. Applications must be made by 1st June to the Dean of the Faculty of Divinity. (*Available in 1957-58.*)

Samuel Finley Memorial Scholarship—$120 is available to a student enrolled in the Faculty of Graduate Studies and Research who is pursuing advanced studies in Divinity. Application should be made to the Dean of the Faculty of Divinity on or before 1st June.

2. AWARDED BY A THEOLOGICAL COLLEGE

Particulars concerning Bursaries, Scholarships, and Prizes open to students registered in the participating theological colleges are set out in the calendars of these institutions, which may be had on application to the respective Principals (see below).

PARTICIPATING THEOLOGICAL COLLEGES

ADDITIONAL COURSES FOR ORDINANDS

The Montreal Diocesan Theological College of the Anglican Church of Canada and the United Theological College of the United Church of Canada are associated with the Faculty of Divinity and contribute to its support. The professors of the Faculty of Divinity who are members of one or other of these Communions may be also members of the faculty in one of the theological colleges. Students in the Faculty of Divinity who are candidates for ordination in the Anglican Church or in the United Church of Canada must be registered also in their respective colleges, where they will receive such practical and other training as is required of candidates for ordination, but which is not part of the course for the B.D. degree.

The Montreal Diocesan Theological College and residence is situated at 3473 University St.; the Principal is Rev. R. H. L. Slater, M.A., Ph.D.

The United Theological College and residence is situated at 3508 University St.; the Principal is Rev. George B. Caird, M.A., D.Phil.

McGill University

Montreal

Faculty of Graduate Studies and Research

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PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and School of Household Science.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (available for distribution only to libraries and officials of certain institutions.)

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Faculty of Graduate Studies and Research

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

David L. Thomson, Ph.D., D.Sc., LL.D., F.R.S.C. — *Vice-Principal of the University and Dean of the Faculty of Graduate Studies and Research*

F. C. MacIntosh, M.A., Ph.D., F.R.S. — *Secretary of the Faculty of Graduate Studies and Research*

William Bentley, C.G.A. — *Bursar*

G. A. Grimson, B.Com. — *Comptroller*

Colin M. McDougall, D.S.O., B.A. — *Registrar*

A complete list of the teaching staff of the University, including the Faculty of Graduate Studies and Research, is printed as a separate announcement, which may be obtained from the Registrar's Office.

COMMITTEE ON RESEARCH

Dean D. L. Thomson, *Chairman*

Professor Joyce Hemlow
Professor T. G. Henderson
Professor Donald Marsh
Professor C. B. Purves
Professor R. W. Reed
Professor C. E. Smith
Professor H. A. Steppler
Professor J. S. Stevenson

MEMBERS OF THE FACULTY (1956-1957)

PROFESSOR D. L. THOMSON (Biochemistry)—*Dean*

PROFESSOR E. F. BEACH (Economics)

PROFESSOR N. J. BERRILL (Zoology)

PROFESSOR J. B. BIRD (Geography)

PROFESSOR JOHN BLAND (Architecture)

PROFESSOR J. W. BOYES (Genetics)

PROFESSOR J. S. L. BROWNE (Medicine)

PROFESSOR A. S. V. BURGEN (Physiology)

PROFESSOR K. B. CALLARD (Political Science)

PROFESSOR T. W. M. CAMERON (Parasitology)

PROFESSOR R. A. CHIPMAN (Electrical Engineering)

PROFESSOR R. V. CHRISTIE (Medicine)

PROFESSOR T. H. CLARK (Geology)

PROFESSOR R. A. CLEGHORN (Psychiatry)

PROFESSOR R. H. COMMON (Agricultural Chemistry)

PROFESSOR J. I. COOPER (History)

PROFESSOR J. G. COULSON (Plant Pathology)

PROFESSOR E. W. CRAMPTON (Nutrition)

PROFESSOR W. A. DELONG (Agricultural Chemistry)

PROFESSOR H. G. DION (Agricultural Chemistry)

PROFESSOR M. J. DUNBAR (Zoology)

PROFESSOR E. M. DUPORTE (Entomology)

PROFESSOR K. A. C. ELLIOTT (Biochemistry)

PROFESSOR G. A. FERGUSON (Psychology)

PROFESSOR H. N. FIELDHOUSE (History)

PROFESSOR H. G. FILES (English)

PROFESSOR J. S. FOSTER (Physics)

PROFESSOR CHARLES FOX (Mathematics)

PROFESSOR R. D. GIBBS (Botany)

PROFESSOR J. E. GILL (Geology)

PROFESSOR W. L. GRAFF (German)

PROFESSOR P. H. H. GRAY (Agricultural Bacteriology)

PROFESSOR F. K. HARE (Geography)

PROFESSOR D. O HEBB (Psychology)

PROFESSOR JOYCE HEMLOW (English)

PROFESSOR T. G. HENDERSON (Philosophy)

PROFESSOR F. S. HOWES (Electrical Engineering)

PROFESSOR R. E. JAMIESON (Civil Engineering)

PROFESSOR H. H. JASPER (Neurology)

PROFESSOR ERIC KIERANS (Economics)

PROFESSOR RAYMOND KLIBANSKY (Philosophy)

PROFESSOR J. E. L. LAUNAY (French)

PROFESSOR C. P. LEBLOND (Anatomy)

PROFESSOR J. U. MACEWAN (Metallurgy)

PROFESSOR D. L. MACFARLANE (Agricultural Economics)

PROFESSOR F. C. MACINTOSH (Physiology)

PROFESSOR G. C. MCMILLAN (Pathology)

PROFESSOR J. R. MALLORY (Political Science)

PROFESSOR R. B. MALMO (Psychiatry)

PROFESSOR DONALD MARSH (Economics)

PROFESSOR J. S. MARSHALL (Physics)

PROFESSOR K. I. MELVILLE (Pharmacology)

PROFESSOR D. L. MORDELL (Mechanical Engineering)

PROFESSOR D. C. MUNROE (Education)

PROFESSOR H. R. MURRAY (Horticulture)

PROFESSOR R. V. V. NICHOLLS (Chemistry)

PROFESSOR W. F. OLIVER (Physics, Macdonald College)

MR. RICHARD PENNINGTON (University Librarian)

PROFESSOR EUGÈNE PÉPIN (International Air Law)

PROFESSOR J. B. PHILLIPS (Chemical Engineering)

PROFESSOR C. B. PURVES (Chemistry)

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Professor Muriel V. Roscoe (Botany)
Professor Aileen Ross (Sociology)
Professor Vernon Ross (Library Science)
Professor F. R. Scott (Law)
Professor C. E. Smith (Education)
Professor W. C. Smith (Comparative Religion and Islamic Studies)
Professor H. Spence-Sales (Architecture)
Professor John Stanley (Zoology)
Professor H. A. Steppler (Agronomy)
Professor J. S. Stevenson (Geology)
Professor J. W. Stevenson (Bacteriology)
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Professor C. A. Winkler (Chemistry)
Professor H. D. Woods (Economics)
Professor G. A. Woonton (Physics)
Professor D. M. Wright (Economics)
Professor Leo Yaffe (Chemistry)
Professor Hans Zassenhaus (Mathematics)

GENERAL STATEMENT

1. The Faculty of Graduate Studies and Research directs and controls courses leading to higher degrees and recommends candidates for these degrees and for certain diplomas.

2. The members of the Faculty are appointed annually by the University Committee on Research (see page 2607) from among those members of the staff who are most active in research or in the training of graduate students. Under the University Statutes this Committee is responsible, jointly with the Graduate Faculty, for organizing and coordinating programmes and courses of research. The Dean of the Faculty is Chairman of the Committee.

ADMISSION

3. Advanced courses of instruction are offered to students who are graduates of any university of recognized standing, and who have at least second class honours, or the equivalent of at least second class honours as granted by McGill University, in the subject in which they desire to take their major work. This implies a standing in the upper half of the undergraduate class, at least, and a considerable amount of specialization, for example 36 semester hours of lectures in the subject selected. Admission to these advanced courses does not in itself imply candidacy for a higher degree or diploma. Every student admitted to the Faculty is, however, attached to one or other of the Departments thereof, which is primarily responsible for guiding his studies.

4. The attention of applicants for admission to the Faculty is directed to the Graduate Record Examination (Educational Testing Service, Box 592, Princeton, N.J.). This examination consists of a relatively advanced test in the candidate's specialty, and a general test of his attainments in the several basic fields of knowledge, for which no special preparation is required or recommended. It is offered at many centres, including Montreal, several times a year; the entire examination occupies some eight hours, and the total fee does not exceed $10.00. Applicants for admission to the Faculty are not required to take this examination, but those who have done so should submit their records therein; these will receive consideration along with other evidence of the candidate's admissibility. This credential is of especial importance in the case of applicants whose education has been interrupted, or has not led directly towards graduate study in the subject selected. In such cases the Department has the right to refuse to consider applications which do not include a report from the Graduate Record Examination or some similar test; some Departments may require such reports of all applicants.

High standing in this examination will not by itself guarantee admission. The Miller Analogies Test may be used similarly, and is required of applicants for admission in Psychology; enquiries should be directed to the Department of Psychology in the applicant's own university or college.

CLASSES OF STUDENTS

5. (a) Those admitted to the Faculty as regular students studying for a higher degree are termed "graduate students."

(b) Those students whose academic degrees and standing entitle them to admission to the Graduate Faculty, but who are not sufficiently prepared to undertake graduate study in the subject selected, may with the permission of the Dean and the Department concerned be permitted to take a "qualifying year" of further undergraduate studies. Qualifying students are registered in the Graduate Faculty, but not as candidates for a degree. For registration procedure, see Section 6 (b) and (c); for fees, see Section 10 (a). Completion of the work of the qualifying year does not automatically entitle the student to proceed towards a higher degree. Students who are ineligible for a qualifying year may apply to the appropriate undergraduate Faculty for admission as regular or partial students, and seek admission to the Graduate Faculty at a later date.

(c) Those qualified students who are permitted to take one or more courses in the Graduate Faculty, without intention of proceeding to a degree or diploma awarded by this Faculty, are termed "partial students of the Graduate Faculty". In the same category are included students carrying on research in McGill laboratories, without intention of proceeding to a degree. For fees see Section 20. If graduate partial students subsequently become candidates for higher degrees, they will normally receive academic credit and sometimes deduction of fees for relevant graduate courses taken as partial students. Students who wish to take further undergraduate courses only should register as "partial students" in the undergraduate Faculty concerned, even if they already hold degrees.

(d) "Resident Students" are those who in any given session are attending classes or making use of the university's libraries or laboratories or other facilities, either on a full-time or (see Section 31a) half-time basis; for "Non-resident Students" see Sections 6(e), 10(d), 12, 13 and 44(c).

APPLICATION AND REGISTRATION

6. (a) Applications for admission should be made in triplicate on special printed forms which may be obtained at the Dean's office. Applicants who are not McGill graduates must submit two certified copies of their complete academic record, and are required to ask two instructors

familiar with their work to send letters of recommendation to the Dean or to the Department concerned. It is desirable to submit a list of the titles of courses taken in the major subject, since transcripts often give code numbers only. The applicant should also indicate the branch of the major subject in which further training is desired. A passport-type photograph should also be supplied, either with the application or after it has been accepted. The application forms, duly signed, should reach the Dean's office as early as possible and in no case later than September 10th, 1957, after which date a late fee of $5.00 will be charged. If the application is approved by the Dean and the Department concerned, one copy of the form will be returned to the applicant.

The course leading to the M.A. in Education (see p. 2662) normally begins with a Summer School, so that there are different dates for application and registration in this case. Last day for submission of applications in 1957 is June 15th. The school commences on July 2nd., which is also the last day for the submission of sessional registration forms.

(b) Approved candidates must consult the Department or Departments in which they intend to study, with regard to choice of courses and subject of investigation. Formal application for permission to attend the courses selected, and for approval of the subject of investigation, must then be made in triplicate on special Registration Forms obtainable from the Dean's office. Language examinations (Section 52) should be entered on these forms, if required. These forms require the signature of the candidate, of the Chairman or Chairmen of the Departments concerned, and of the Professor appointed to act as director of the candidate's research, and are normally completed in consultation with the Department; students are warned that it may take a day or two to arrange and complete such consultations. The completed forms should be filed in the Dean's office as early as possible, and at the latest by September 26th; after this date a late fee will be charged. Candidates should in any case be prepared to attend the regular courses of instruction, which begin on September 26th.

(c) The registration forms will be scrutinized by the Dean and the Committee on Research, and if approval is given one copy will be returned to the candidate, who must then present it without delay at the Registrar's office. The student will meanwhile attend lectures, etc., on the assumption that his registration will be approved; but will not be given credit for attendance until he has completed registration at the Registrar's office. Candidates must register in this way, and pay their fees not later than October 21st; otherwise the prescribed penalty for late registration and late payment of fees will be enforced.

(d) Candidates whose studies extend over more than one year must register at the Dean's office and at the Registrar's office, as above, at the commencement of each year of their course; if they have not so registered at the beginning of the academic year, they are not eligible to receive their degrees at the following Convocations. This applies also to non-resident candidates working at another institution (see Section 44).

(e) Candidates who have completed their courses and their residence but have not yet completed their theses must register at the offices of both the Dean and the Registrar, and pay a registration fee of $10, if non-resident, or $25 if resident, at the beginning of the session in which they present their theses: unless this is done, the thesis can not be examined and the degree can not be awarded (see Section 13).

(f) In some Departments it is in special cases possible to admit selected candidates at unusual times, for example at the beginning of the second term (January 6th) or at the beginning of the summer.

(g) Regulations concerning application and registration for the diplomas awarded by this Faculty will be found under Electrical Communications (p. 2668) and School Supervision (p. 2664).

DEGREES AND DIPLOMAS

7. Graduate students may proceed to one or other of the following degrees: Master of Commerce (M.Com.), Master of Library Science (M.L.S.), Master of Architecture (M.Arch.), Master of Science (M.Sc.), Master of Science (Applied), [M.Sc. (Appl.)], Master of Engineering (M.Eng.), Master of Arts (M.A.), Master of Sacred Theology (S.T.M.), Master of Civil Law (M.C.L.), Master of Laws (LL.M.), Doctor of Philosophy (Ph.D.), Doctor of Civil Law (D.C.L.), or to Diplomas in Electrical Engineering or in School Supervision.

COURSES AT MACDONALD COLLEGE

8. (a) Graduate students who are taking the major part of their work at Macdonald College may go into residence there and may take, when required, other graduate courses given at the University.

(b) Students wishing to reside in Macdonald College should send in their application for accommodation to the Registrar, Macdonald College, Que., as soon as possible.

(c) Any fees in connection with courses taken at Macdonald College are payable to the Bursar of Macdonald College.

FELLOWSHIPS, SCHOLARSHIPS, AND MEDALS

9. (a) Details of Fellowships, Scholarships, Bursaries, Medals, and Loan Funds available for graduate students will be found in the Announcement of Scholarships, Bursaries, Prizes, and Medals, obtainable from the Registrar.

The following Graduate Fellowships and Scholarships are offered at McGill University to graduates of other approved institutions:

The University Fellowships, normally of $800 in the Humanities and Social Sciences.

The Arthur C. Tagge Fellowship of $1200 in the Humanities and Social Sciences.

The W. M. Birks Fellowship of $750 in Theology.

The Bronfman Fellowships of $1200 in Economics and Commerce.

The Alexander Mackenzie Fellowship of $950 in Political Science.

The Union Carbide Fellowships of $1500 in the Natural and Social Sciences.

The Philip Carpenter Fellowship in Zoology.

The Leroy Memorial Fellowship of $700 in Geology.

The Cominco Fellowship of $1000 for research on metals, chemicals, or fertilizers.

The Shell Oil Fellowship of $1200 plus a grant for summer study, in Chemistry, Mechanical Engineering, Geology, or Physics.

The Inco Scholarships of $500 in Chemical Engineering, Mining, Metallurgy, or Geology.

The Aluminium Laboratories Fellowship of $1600 plus fees, in Physical Metallurgy and related subjects.

The T. Sterry Hunt Scholarship of $600, in Chemistry and Chemical Engineering, for holders of a Master's or other higher degree.

The C.I.L. Fellowships of $1700 in Chemistry (British subjects).

The Gottesman ($800), American Viscose Corporation ($2000), and Frank J. Sensenbrenner ($1400 plus fees) Fellowships tenable in Pulp and Paper Research.

The Allied Chemical and Dye Corporation Fellowship of $1500 for an unmarried man ($2000 for a married man) plus tuition fees, in Cellulose Chemistry.

The Celanese Fellowship of $1500 in Industrial and Cellulose Chemistry.

The Visking Limited Fellowship of $2250 for research in the Pulp and Paper Research Institute.

The Harold Hibbert Memorial Fellowship of approximately $3000 for postdoctoral research work in Chemistry.

The James Douglas Fellowship in Pathology.

The J. B. Collip Fellowships in Medical Sciences.

The H. W. Molson Fellowship of not less than $1000 for Cancer Research.

The John McCrae Fellowship of $1000 in Experimental Surgery.

Fellowships in Neurology and Neurosurgery.

Fellowships in the Institute of Islamic Studies.

McGill University Carnegie Arctic Scholarships.

In most cases application should be made to the Dean of the Graduate Faculty prior to May 1st. Details of these awards, and of awards offered by other sources but tenable at McGill, are given in the Scholarships Announcement, obtainable from the Registrar's Office.

Application for the awards made by this Faculty should be made on forms obtainable from the Dean's Office and must be accompanied by application for admission (if this has not already been secured), supported by transcripts, testimonials, etc. Special forms are required for the Bronfman Fellowships and Arctic Scholarships, and inquiries for these should be made before January 31st.

(b) In several Departments graduate students are eligible for demonstratorships and assistantships. Information concerning these may be obtained from the Chairman of the Department concerned.

FEES

The University reserves the right to change any fee without notice.

10. (a) The inclusive fee for a *full time session of resident study* (e.g. a Qualifying Year, the required year for the Master's degree, of the two required years for the M.Sc. (Applied) in Mineral Exploration, or each of the three required years for the Ph.D.) is $400.00. Full-time Assistant and Associate Professors and Lecturers are eligible to apply for a rebate on these fees.

(b) The inclusive fee for a *half-session of full-time study* or for a *session of half-time study* (see Section 31) is $200.00.

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(c) The fee for an *additional session of resident study*, beyond the required year for the Master's degree or the three required years for the Ph.D., for students in good standing whether full-time or half-time, is $25.00 plus a "student activities" fee, which is $6.00 at McGill, and at Macdonald College is $17.00 for men and $14.00 for women.

(d) The registration fee for a *session not spent in residence* (see Sections 5d, 6e, 13, and 44) is $10.00.

(e) The additional fee for a degree conferred *in absentia* is $10.00.

(f) Candidates for the M.L.S. are required to contribute to a fund for students' travelling expenses, in addition to all fees.

11. The above fees for resident students are inclusive, and cover tuition, graduation, the use of laboratories and libraries, the health service and athletic privileges, and membership in the Postgraduate Students' Society. These is no additional charge for the use of such university facilities as may be available in the summer following the academic session. Additional fees are however charged as set forth below, for special and supplemental examinations, for the re-examination of revised theses, for the repetition of uncompleted courses, and for late registration, etc. Any student taking a lecture course or doing laboratory work, or receiving regular guidance or consultation from any member of the staff, is considered to be in residence. He must register and pay fees as above. For payment by instalments, see Section 21.

12. A Ph.D. candidate permitted to spend either the Second or the Third year of his course at an approved institution elsewhere (see Section 44c) must register at the Dean's office and with the Registrar at McGill as a non-resident student, and pay a fee of $10.00.

13. (a) A student who has completed his courses and his residence but has not completed his thesis must register at the Dean's office and with the Registrar, and pay a registration fee of $10, at the beginning of the session in which he intends to present his thesis, whether for the Spring or the Fall Convocation. Such a student is not considered to be in residence, and the $10 fee does not give the student access to the libraries or laboratories, nor health and athletic privileges, nor membership in the Postgraduate Students' Society. If the student does not fulfil his intention to present his thesis, the fee is not returned and can not be transferred to any subsequent session.

(b) Registration is also required when a student has completed all requirements except for one or more examinations. The fee in this case will be $10.00 (non-resident) or $25.00 (resident), in addition to any fees due for special examinations (Sections 16, 17).

The Celanese Fellowship of $1500 in Industrial and Cellulose Chemistry.

The Visking Limited Fellowship of $2250 for research in the Pulp and Paper Research Institute.

The Harold Hibbert Memorial Fellowship of approximately $3000 for postdoctoral research work in Chemistry.

The James Douglas Fellowship in Pathology.

The J. B. Collip Fellowships in Medical Sciences.

The H. W. Molson Fellowship of not less than $1000 for Cancer Research.

The John McCrae Fellowship of $1000 in Experimental Surgery.

Fellowships in Neurology and Neurosurgery.

Fellowships in the Institute of Islamic Studies.

McGill University Carnegie Arctic Scholarships.

In most cases application should be made to the Dean of the Graduate Faculty prior to May 1st. Details of these awards, and of awards offered by other sources but tenable at McGill, are given in the Scholarships Announcement, obtainable from the Registrar's Office.

Application for the awards made by this Faculty should be made on forms obtainable from the Dean's Office and must be accompanied by application for admission (if this has not already been secured), supported by transcripts, testimonials, etc. Special forms are required for the Bronfman Fellowships and Arctic Scholarships, and inquiries for these should be made before January 31st.

(b) In several Departments graduate students are eligible for demonstratorships and assistantships. Information concerning these may be obtained from the Chairman of the Department concerned.

FEES

The University reserves the right to change any fee without notice.

10. (a) The inclusive fee for a *full time session of resident study* (e.g. a Qualifying Year, the required year for the Master's degree, of the two required years for the M.Sc. (Applied) in Mineral Exploration, or each of the three required years for the Ph.D.) is $400.00. Full-time Assistant and Associate Professors and Lecturers are eligible to apply for a rebate on these fees.

(b) The inclusive fee for a *half-session of full-time study* or for a *session of half-time study* (see Section 31) is $200.00.

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(c) The fee for an *additional session of resident study*, beyond the required year for the Master's degree or the three required years for the Ph.D., for students in good standing whether full-time or half-time, is $25.00 plus a "student activities" fee, which is $6.00 at McGill, and at Macdonald College is $17.00 for men and $14.00 for women.

(d) The registration fee for a *session not spent in residence* (see Sections 5d, 6e, 13, and 44) is $10.00.

(e) The additional fee for a degree conferred *in absentia* is $10.00.

(f) Candidates for the M.L.S. are required to contribute to a fund for students' travelling expenses, in addition to all fees.

11. The above fees for resident students are inclusive, and cover tuition, graduation, the use of laboratories and libraries, the health service and athletic privileges, and membership in the Postgraduate Students' Society. These is no additional charge for the use of such university facilities as may be available in the summer following the academic session. Additional fees are however charged as set forth below, for special and supplemental examinations, for the re-examination of revised theses, for the repetition of uncompleted courses, and for late registration, etc. Any student taking a lecture course or doing laboratory work, or receiving regular guidance or consultation from any member of the staff, is considered to be in residence. He must register and pay fees as above. For payment by instalments, see Section 21.

12. A Ph.D. candidate permitted to spend either the Second or the Third year of his course at an approved institution elsewhere (see Section 44c) must register at the Dean's office and with the Registrar at McGill as a non-resident student, and pay a fee of $10.00.

13. (a) A student who has completed his courses and his residence but has not completed his thesis must register at the Dean's office and with the Registrar, and pay a registration fee of $10, at the beginning of the session in which he intends to present his thesis, whether for the Spring or the Fall Convocation. Such a student is not considered to be in residence, and the $10 fee does not give the student access to the libraries or laboratories, nor health and athletic privileges, nor membership in the Postgraduate Students' Society. If the student does not fulfil his intention to present his thesis, the fee is not returned and can not be transferred to any subsequent session.

(b) Registration is also required when a student has completed all requirements except for one or more examinations. The fee in this case will be $10.00 (non-resident) or $25.00 (resident), in addition to any fees due for special examinations (Sections 16, 17).

14. A graduation fee of $200.00 is payable for the degree of D.C.L. and should be forwarded with the application. This fee includes the cost of registration, but does not give the candidate the privileges of a student in residence.

There is no fee for any degree granted *honoris causa*.

15. (a) A candidate whose thesis is judged unsatisfactory by the examiners may present a revised thesis once again, for a subsequent Convocation, upon payment of the following fees:

Master's degree	$20.00
Ph.D. degree	35.00
D.C.L.	50.00

(b) Except for the D.C.L. degree, a registration fee of $10.00 (see Section 13) is also payable if a new session of non-resident study is entered; if the student remains in residence for an additional session, the fee of $25 (see Section 10c) will be charged instead of the registration fee, and in addition to the re-examination fee and Student Activities fee.

16. Fees for supplemental examinations, granted under special circumstances by permission of the Dean on the recommendation of the Department, are payable in advance at $10.00 per paper. A student who has failed in any required course and does not receive permission to attempt a supplemental examination must retire from the Faculty. Only under exceptional circumstances may permission be granted by the Dean, on the recommendation of the Department, for the student to repeat any such course. In such a case the student must pay the fee required of partial students for the course in question (see Section 20) in addition to fees applicable under Sections 10 and 15, but does not pay for supplemental examinations.

17. There is no fee for the language examinations for Ph.D. students (see Section 52) when these are first taken. A fee of $5.00 is however charged when these examinations are retaken after a previous failure.

18. French Summer School students who are proceeding to the M.A. degree are liable for the regular fee of $400 for the M.A. course but are remitted $97.50 of this for each Summer Session they have attended in the advanced course. At the end of the second Summer Session they are required to apply for and obtain admission to the Faculty of Graduate Studies (see Section 6a), but they do not register therein (Sections 6b, c, d) until the end of the fourth Summer Session; at that time they must register on sessional forms at the Dean's office, as "non-resident students",

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and pay the balance still owing of the M.A. fee. If the presentation of the thesis is postponed beyond the September one year after this registration, they will pay an additional registration fee of $10.00 at the beginning of the session in which the thesis is to be presented. Students who have completed four Summer Sessions in French (or the equivalent) are excused the *in absentia* fee (see Section 10e) when they obtain an M.A. degree

19. Students permitted to work for the High School Diploma and for the M.A. concurrently, spreading the work for the M.A. over two years, pay the fee for the Diploma course in the first and the normal fee of $400.00 for the M.A. degree in the second of these years.

20. The normal fee for "partial students of the Graduate Faculty" as defined in Section 5b is $100.00 per full course; special fees may be required for certain laboratory courses. A partial student carrying on research in McGill laboratories, but not taking courses, will normally pay $100.00 per session. Partial students must also pay the Grounds Fee of $5.00 and, if taking three or more full courses, the Health Service fee of $7.00 and Student's Activities fee of $5.00.

21. Fees are due and payable at the Accounting Office on or before October 21st. If paid by instalments the second instalment is due on January 15th. An additional $5.00 is charged for payment by instalments. An additional $2.00 is charged for payment after the specified dates.

22. Immediately after October 21st a list of students who have not paid their fees is sent to the Dean of the Faculty, who removes their names from the register of attendance. Such students cannot be re-admitted to any class until instructions have been received from the Chief Accountant that the fees have been paid.

23. Late fees are charged as follows:

Application forms, after September 10th	$5.00
Registration at Dean's Office, after September 26th	5.00
Registration at Registrar's Office, after October 21st	5.00
Payment of fees, after October 21st	2.00

24. All resident students with the exception of those at Macdonald College, are entitled to the following health and athletic privileges:

(a) Medical examination (compulsory); daily consultation service and hospital treatment, as furnished to undergraduates.

(b) Tennis privileges during the session and summer privileges on the same basis as undergraduates (Present summer fee $6.00).

(c) Social skating privileges on the campus rink.

(d) Opportunities for exercise with various athletic clubs and eligibility for intercollegiate and other teams.

(e) A book of spectator's tickets, granting admission to all intercollegiate football and hockey games, etc., may be purchased for $3.00.

25. At Macdonald College, graduate students are entitled to medical attendance, major operations excepted, on the same basis as other students. Graduate students at Macdonald College are entitled to participate in the activities of the various organizations under the Students' Council and to have one representative on the Students' Council.

26. All resident students of the Faculty of Graduate Studies and Research are members of the Postgraduate Students' Society.

27. All fees are payable in Canadian currency.

RESEARCH ASSOCIATES

28. This title is intended to provide recognition and status on the University records for investigators who are neither candidates for a degree nor members of the staff of McGill University, but are attached temporarily to a department on the ground that their assistance is required in the interests of a current programme of research.

29. A Research Associate will normally hold the Ph.D. degree or an equivalent qualification.

30. Any money grant which a Research Associate may receive must be either from McGill University or from some other institution promoting the advancement of learning, and must be paid solely for the furtherance of the research that he is pursuing and not for instruction or demonstration. A Research Associate may, however, with the permission of the Faculty, act as a director of research for graduate students associated with him.

GENERAL RULES CONCERNING HIGHER DEGREES

31. (a) A graduate student is expected to devote his full time to his courses, reading, and research in each session counted towards completion of residence requirements. Members of the teaching staff of the University who are also students in the Graduate Faculty and who give more than three hours of lecturing or six hours of conference work or twelve hours of supervisory work in laboratories and allied services per week, and other students doing an equivalent amount of additional work inside or outside the University, may not obtain the Master's degree in one year, and will require at least four years for the Ph.D. At least one of the years required for either degree must be spread over two sessions, in each of which such students will be registered as ***half-time*** workers and will pay a fee of $200.00.

(b) No full-time student registered in any professional Faculty of the University may register for a graduate degree or for a qualifying year without the special permission of both Faculties.

(c) Students assisted by the Department of Veterans' Affairs are not considered to be "full-time" if they are giving more than nine hours per week to demonstrating and similar services.

(d) A degree is granted in the Faculty of Graduate Studies essentially for work in one subject, known as the student's *major subject*. Certain allied or "cognate" courses in other subjects may be permitted or required; these must be entered on the sessional registration form, which must show whether the courses are to be taken for credit, including examination, or merely attended, and which must be signed by the Chairmen of the Departments concerned.

(e) There is no fixed number of course credits required for these degrees. The Department concerned will rather examine the applicant's previous training, undergraduate and graduate, and then decide how many of the available courses in the major subject and related fields are still required to bring the candidate to the proper level for the Master's degree or Ph. D. The satisfactory completion of such essential courses and the presentation of an acceptable thesis are two separate requirements which must be separately met. Due account will be taken of all relevant courses passed at any recognized University or College

(f) A candidate with a given higher degree may be permitted to proceed to a second degree of the same kind, but in another subject, provided that the usual requirements for the degree are entirely fulfilled and approved as usual by the Department concerned. In the computation of fees for such second degree, no account will be taken of the student's previous registration in the Graduate Faculty.

CLASSIFICATION OF MARKS

32. 100-80%.....First Class
79-65%.....Second Class
Below 65%.....Failure

This classification applies also to students taking a Qualifying Year.

Students who obtain marks between 50 and 64% in courses not required for the degree sought may, on recommendation of the major Department, be recorded as having "passed at the undergraduate level."

Students who have failed in required examinations are permitted to write supplemental examinations only on the recommendation of the major Department and with the permission of the Dean (see Section 16.)

THE MASTER'S DEGREE

33. (a) **Normal Procedure for the Master's Degree.**

At least one full session or two half-sessions of resident study at McGill University is required for a Master's degree; this is a minimum requirement, and it will usually be found impossible to complete the work for the degree within this time; the M.Sc. (Applied), the M.A. in Islamic Studies, the M.Arch. in Community Planning, and the LL.M. cannot be completed within one academic session, and the M.A. in Education requires participation in two Summer Schools as well as in a part-time winter session. Residence credit is not given for work done during the summer vacation, either at McGill (save in the French Summer School and in Education) or elsewhere; the majority of graduate students find it necessary, however, to devote the greater part of their summers to work upon the thesis problem. The procedure to be followed in applying for admission and in completing registration is described above (Section 6). The candidate is required to pass the examinations in the courses which have been indicated to him by the Department and which are recorded on his approved registration form (except such courses as are marked "not for examination") and he may also be required to pass a general examination in his major subject; the marks or classes he obtains in these examinations are part of his qualifications for the degree. The candidate must also present a thesis on some topic connected with his major subject, except in the case of the Master of Science (Applied). The title of the thesis may be entered upon the registration form, and if not decided at that date must be subsequently submitted, in writing, to the Chairman of the Department concerned and to the Dean for formal approval at least four months before the thesis is handed in. The thesis must be in some measure a contribution to knowledge and must also be written in good literary style. *For further regulations regarding theses, see Section 59, 60, and 61.*

(b) Candidates who intend to proceed later to the Doctor's degree should note the language requirements (Section 52) and are strongly advised to take the examination in at least one language while working for the Master's degree.

34. **Special Concessions for Civil Servants.**

With regard to the M.Sc. and M.Eng. (which may be the First year of the Ph.D. course), the following concessions are approved:

(a) Candidates for the degrees of M.Sc. or M.Eng. who are graduates of McGill University and have had two or more years' experience in a Government Department, performing as their main duty work of the same type as that proposed for research, may, on recommendation of a Department and with the approval of the Faculty, have their residence requirements reduced to one half-session only. It is understood that these candidates must take the usual final examination in all subjects required. The full sessional fee is payable.

No special concessions can be made to Civil Servants who are graduates of universities other than McGill.

(b) A Government laboratory may be approved by the Faculty as a research institution (see Section 44c).

35. The Degree of Master of Arts.

(a) Instruction in the Faculty of Graduate Studies and Research leading to the degree of Master of Arts is provided in the following Departments of study, which rank as "subjects":

Classics
Comparative Religion
Economics and Political Science
Education
English Language and Literature
French Language and Literature
Geography
German
History
Islamic Studies
Mathematics
Philosophy
Physics
Psychology
Sociology and Anthropology

Studies in other subjects, including sciences and certain theological studies (see p. 2655), may be undertaken as cognate courses only, and only with the permission of the Departments concerned.

(b) Candidates must hold the degree of B.A. They must have obtained at least a second class in an Honours course at McGill University, or its equivalent elsewhere, in the subject or subjects which they propose to study.

(c) The degree of Master of Social Work is administered by the Faculty of Arts and Science; enquiries should be addressed to the Director of the School of Social Work.

36. The Degree of Master of Science.

(a) Instruction in the Faculty of Graduate Studies and Research leading to the degree of Master of Science is provided in the following Departments of study:

Agricultural Bacteriology	Investigative Medicine
Agricultural Chemistry	Mathematics
Agronomy	Metallurgy
Anatomy	Meteorology
Bacteriology and Immunology	Neurology and Neurosurgery
Biochemistry	Nutrition
Botany	Parasitology
Chemistry	Pathology
Electrical Communications	Pharmacology
Entomology	Physics
Experimental Medicine	Physiology
Experimental Surgery	Plant Pathology
Genetics	Poultry Husbandry
Geography	Psychiatry
Geological Sciences	Psychology
Horticulture	Zoology

(b) Candidates must hold a Bachelor's degree with at least second class in an Honours course at McGill University, or its equivalent. Candidates with an M.D. degree must have attained high standing.

37. The Degree of Master of Engineering.

(a) Instruction for the degree of Master of Engineering is given in the following Departments of study, which rank as "subjects," in which definite courses may be selected:

Chemical Engineering
Civil Engineering
Electrical Engineering
Mechanical Engineering
Metallurgical Engineering
Mining Engineering

(b) Candidates must hold the degree of Bachelor of Engineering, or an equivalent degree, and their undergraduate academic rank must, in general, be equivalent to high second-class standing.

(c) The establishment of the degree of Master of Engineering does not prevent a properly qualified holder of the degree of Bachelor of Engineering, or the equivalent, from proceeding to the degree of Master of Science in pure science.

38. **The Degree of Master of Architecture.**

(a) Instruction for the degree of Master of Architecture is given in the following Departments of study, which rank as "subjects."

Architectural Design
Community Planning
Housing

(b) Candidates must hold the degree of Bachelor of Architecture or an equivalent degree, and their undergraduate rank must, in general, be equivalent to high second-class standing.

(c) One only of the above subjects may be taken.

Each candidate is required to take at least one course in his subject involving at least one year of resident study; in the Community Planning option requirements can not be completed in one year.

In addition he is required to meet in personal conference at least once a week the professor under whose supervision he is preparing his thesis.

39. **Master's Degrees in Law.**

(a) Instruction leading to the degree of Master of Civil Law (M.C.L.) is offered in the following departments of study:

Roman Law
Civil Law
Commercial and Maritime Law
Public Law, including International Law

At least one session of full-time resident study, or its equivalent, is required; this includes the passing of one or more courses and the preparation, under supervision, of an acceptable thesis.

(b) The degree of Master of Laws (LL.M.) is offered in the Institute of International Air Law only. The curriculum involves one full-time session of resident study including prescribed and elective courses; students whose work has been found satisfactory will be permitted to complete requirements for the degree by submitting an acceptable dissertation in a subsequent session, which need not be spent in residence.

(c) Applicants for admission to candidacy for the M.C.L. or LL.M. must hold an acceptable degree in Law or equivalent qualifications. For further particulars see page 2705, or consult the Secretary of the Faculty of Law.

40. **The Degree of Master of Commerce.**

(a) This degree is at present granted in Economics only.

(b) Candidates must hold the degree of B.Com. from McGill University, with at least a creditable average second-class standing, and with at least second class standing in the required courses in Economics: graduates of other universities must possess equivalent qualifications, especially in Economics.

(c) Applications for admission must be approved by the Director of the School of Commerce and by the Chairman of the Department of Economics.

41. The Degree of Master of Library Science.

The candidate must hold the degree of Bachelor of Library Science, or an equivalent degree, from an accredited Library School approved by McGill University. This degree must represent a fifth year of academic study in which the candidate has obtained at least a B average. Competence to undertake graduate study must have been demonstrated and at least two years of professional library experience is required. He must show evidence of a reading knowledge of at least one language other than English before the degree is granted. The French language is recommended but another language may be accepted if appropriate to the work which the candidate intends to undertake. If courses taken previously by the candidate are considered inadequate for the graduate courses offered he may be required to undertake some additional courses in the Library School or elsewhere in the University.

Candidates should notify the Director of the Library School of their intention to follow the course leading to the M.L.S. degree as early as possible, preferably before August 1st. Formal application to the Faculty of Graduate Studies and Research should be made before September 10th.

42. Master's Degree in Theology.

(a) Applicants for admission to the course leading to the degree of *Sanctæ Theologiæ Magister* (S.T.M.) must hold the B.A. degree and the degree of B.D., or its equivalent, from a recognized university, college, or seminary. They must have sufficiently high academic standing and adequate preliminary training, including a knowledge of the requisite ancient or modern languages, for higher studies in the field selected. The M.A. is offered as well as the S.T.M., in the field of Comparative Religion, which is therefore open to other qualified applicants who do not hold the B.D. or equivalent.

(b) Candidates must undertake full-time resident study at McGill University for at least one academic session or two half-sessions, during which they will prepare for the examinations in the courses to which they are assigned. A thesis on an approved subject within the major field selected is a further requirement for the degree. For further particulars see page 2655.

43. Master's Degree in Science (Applied).

The degree of Master of Science (Applied) was established in 1949 to permit approved Departments to offer postgraduate training of a professional and vocational character, with less emphasis on theoretical knowledge and research than in other degrees of this Faculty but with no lower standards either for admission or for completion of requirements. Curricula of this type are at present available only in the Departments of Psychology and Geological Sciences (Mineral Exploration), whose statement herein should be consulted, and lead to the degree of Master of Science (Applied) [M.Sc.(Appl.)]. (See pages 2694 & 2741.)

REGULATIONS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D.)

44. (a) Candidates for the degree of Doctor of Philosophy must hold the degree of B.A. with Honours, or B.Sc. with Honours, or B.Eng. or B.Com., or B.Sc. (Agr.) or M.D., with at least good second-class standing in each case, from McGill University, or some equivalent qualification.

(b) Many Departments will require candidates who do not already hold an appropriate Master's degree to register for the M.A. or M.Sc. rather than for the Ph.D. direct; but may later recommend to the Committee on Research that candidates of undoubted promise should be allowed to proceed directly towards the Ph.D. without being required to submit a Master's thesis; in other cases, permission to proceed towards the Ph.D. may depend on the standing obtained in the Master's degree.

(c) Candidates must follow a course of at least three years' resident study at a University or other institution of higher learning or research; this is a minimum requirement, and there is no guarantee that the work for the degree can be completed in this time. Two at least of these years must be spent at McGill University, and these should if possible include the final year. Departments may permit or require candidates to spend one session at another institution approved by the Committee on Research (for fees, etc., see Section 12); it is understood that this session must be one of full-time study, and that the institution selected must be able to provide expert supervision and facilities for research appropriate to the candidate, in the field selected. Candidates are therefore required to submit a programme of the work projected and particulars of the institution selected, for approval by the Committee, before undertaking any such period of study apart. They must register at McGill as non-resident students; and the Committee may require reports on progress from time to time or at the end of the period for which credit is claimed. The Faculty may make special exceptions to these general regulations con-

cerning residence; it may permit McGill graduates, for example, to spend two years in study apart at approved institutions and to reside at McGill for the final year only. Residence credit is not granted for work done during the summer vacations, either at McGill or elsewhere; but it is the custom for candidates to spend the greater part of each summer in work upon the thesis problem, and those who do not do so are unlikely to complete a satisfactory thesis in the prescribed minimum time; in certain subjects, *e.g.* in Agricultural sciences, summer researches are indispensable.

45. A student who has obtained his Master's degree at McGill University or at an approved institution elsewhere, and is proceeding in the same subject to a Ph.D. may, on recommendation of the Department, be permitted to count the work done for the former as the first year of his resident study for the Doctor's degree (see Section 44). The attention of students seeking admission on this basis is drawn to the language requirements (Section 52d), for which they are advised to prepare themselves in advance.

46. Candidates must select one major subject (see Section 31d). Courses leading to the degree of Doctor of Philosophy are offered in the following as major subjects:

Agricultural Bacteriology
Agricultural Chemistry
Anatomy
Bacteriology and Immunology
Biochemistry
Botany
Geography
Geological Sciences
History
Investigative Medicine
Mathematics
Meteorology
Neurology and Neurosurgery
Parasitology
Chemistry
Economics and Political Science
Electrical Engineering
Entomology
Experimental Medicine
Genetics
Pathology
Pharmacology
Physics
Physiology
Plant Pathology
Psychology
Zoology

47. In special cases, other Departments may be authorized to provide courses which will lead to this degree. Candidates desiring to proceed to the degree of Doctor of Philosophy in other Departments than those mentioned above should, therefore, make direct application to the Dean of Graduate Studies and Research, asking whether courses in such subjects can be provided.

48. The course of study which the candidate desires to follow must, before he enters upon it, have been submitted to the Chairmen of the several Departments concerned and have received their approval (see Section 6b)

49. **Preliminary Examination.** The first two years include instruction, training and direction in the candidate's field of study, with the object of giving him a knowledge of his particular subject and its relation to cognate branches of learning and of preparing him for independent investigation. The candidate's preliminary examination is held at the end of the second year, unless otherwise specified by Departmental regulations approved by the Faculty. This examination covers all graduate work previously taken by the candidate, including his prescribed reading, and may also include any work fundamental thereto. The candidate must show that he possesses a good general knowledge of the whole science or branch of learning which he has selected as his major subject. The examination may be written or oral or both. The result of this examination determines whether the candidate is allowed to proceed to his degree. The final year is devoted chiefly to the preparation of the thesis, the research for which is normally begun in the first year.

50. The candidate is also required to pass the examinations in the courses indicated by the Department, and recorded on his approved registration form, unless they have been marked "not for examination."

51. After the thesis has been received and approved, a final oral examination on the subject of the thesis and subjects more intimately related to it is held. This is conducted in the presence of a Committee of at least four members approved by the Faculty of Graduate Studies.

52. (a) Every candidate must satisfy the Faculty of Graduate Studies and Research that he has a reading knowledge of French and German; candidates may, however, seek the permission of the Dean to substitute another language for either French or German. The Departments of Agronomy, Parasitology, and Psychology may however require students to concentrate upon *one* foreign language, to be taken at a more advanced level.

(b) The candidate's major Department will select German passages for translation, typical of the subject, and will make arrangements for the examination. The Department of German must approve the passages selected, and will correct the translations and decide whether the candidate has fulfilled the requirements; it may also require any candidate to appear for oral examination. The Department of French will set and conduct its examinations.

(c) The examinations (French 500, German 500, etc.) may be written in the first two weeks of December; other dates may be arranged on recommendation of the Department to the Dean. A student will not ordinarily be permitted to attempt any language examination on more than two occasions in any one calendar year. There is no fee for these examinations when they are first taken. A fee of $5.00 is however charged when these examinations are taken after a previous failure (see Section 17).

(d) Candidates are expected to take at least one language examination in the First year of the Ph.D. course, and the other not later than the Second year. Sessional registration forms (Section 6b) must indicate the student's intentions in this respect. Students admitted to the Second year of the Ph.D. course (Section 45) must discharge their language requirements as early as possible. Sessional registration forms which do not comply with these requirements may be rejected.

(e) The Department of German offers a course open to candidates for the Ph.D. degree and designed to help them to acquire the necessary reading knowledge of the language: two hours per week, Monday and Friday at 12 (See page 2697).

53. **Thesis.**

(a) The thesis for the Ph.D. degree must display original scholarship expressed in satisfactory literary form and be a distinct contribution to knowledge. The subject of this thesis must have been approved, in writing, by the Chairman of the Department in which the major subject is taken, and also by the Committee on Research, at least twelve months before the date of the final examination; the exact title may be decided later (Section 59d).

(b) Three copies of the thesis must be provided by the candidate; some Departments may require one or more additional copies.

(c) The regulations concerning theses are stated in Sections 59, 60, and 61.

54. Special regulations for the Ph.D. in Economics are stated on page 2660, in History on page 2697, and in Entomology on page 2674.

REGULATIONS FOR THE DEGREE OF DOCTOR OF CIVIL LAW (D.C.L.)

55. Any person who has graduated as a B.C.L. from McGill University may after seven years from such graduation proceed to the degree of Doctor of Civil Law, provided he has distinguished himself by eminent services in the domain of law, and provided he has written a thesis on a subject previously approved by the Faculty of Graduate Studies and Research, and that such thesis has been adjudged by that Faculty to be

a valuable contribution to legal science. The candidate may, instead of a thesis, submit a published book or books dealing in a scientific way with some branch or branches of law. Three copies of the thesis or book should be submitted to the Dean not later than February 14th, if the candidate hopes to be presented at the Spring Convocation. A very high standard is required for this degree, but it does not call for any resident graduate study in the University. See also Sections 14, 15, and 60 (h).

REGULATIONS CONCERNING THESES

59. (a) In the case of students who wish to graduate at the Spring Convocation, all theses for a Master's degree must be handed to the Dean of the Faculty of Graduate Studies and Research not later than April 22nd, 1958.

(b) All theses for the degree of Ph.D. must be in the hands of the Dean not later than April 14th, 1958.

(c) The theses of students who wish to graduate with a Master's degree at the Fall Convocation must be in the hands of the Dean of the Faculty of Graduate Studies and Research not later than August 26th, 1957.

(d) The theses of students who wish to graduate with a Ph.D. at the Fall Convocation 1957 must be in the hands of the Dean not later than August 21st, 1957.

In 1957-58 and thereafter the following *new regulations* will apply:

The theses of students who wish to graduate as Doctors of Philosophy at the Spring Convocation must be in the hands of the Dean not later than April 14th, 1958. The Ph.D. will not be conferred at the Fall Convocation, save in certain special cases defined below. Ph.D. theses, provided that their titles have been approved by the Department and submitted to the Dean at least four months earlier, may, however, be handed in to the Dean's office at any time. The Dean will then submit the thesis to the examiners, and the final oral examination will be held at the first convenient time after the examiners have reported; this will ordinarily be about one month after the submission of the thesis, but from June to September (inclusive) two months or more may be required. Candidates are advised to give the Dean's office one or two weeks notice of their intention to submit the thesis; this will lessen the risk of delay. If all other requirements have been met, the examiners' reports are favourable, and the final oral examination is passed, the Dean will issue a certificate stating that all requirements for the degree have been completed and that, subject to the concurrence of Faculty and Senate, the degree will be conferred at the next Spring Convocation.

The candidate must register and pay the appropriate fee for the session in which the final oral examination is held; but need not register nor pay fees for a session in which, having previously completed all requirements, he is waiting for the degree to be conferred. The session begins in the last week of September.

The Ph.D. degree will be conferred at the Fall Convocation only in the following cases: (i) on candidates who had completed all requirements in time for the preceding Spring Convocation, but were prevented from graduating by illness or family misfortune; (ii) on students who, having completed all other requirements in time for the preceding Spring Convocation, had one required examination outstanding, and who subsequently pass this examination not later than September 15th; (iii) on students who, having completed all other requirements (including the final oral examination) in time for the preceding Spring Convocation, have had their theses returned for minor or typographical corrections, and have been permitted to resubmit a revised form; provided that the revised thesis is resubmitted not later than June 30th and is found to be acceptable.

(e) The title of the thesis, as approved by the Department, must be submitted for approval by the Committee on Research at least four months before the thesis is handed in. The Dean may subsequently permit minor changes in the wording of the title.

60. All theses submitted by successful candidates for higher degrees are bound and placed in the Library. Candidates for such degrees are therefore advised that the Faculty of Graduate Studies and Research requires theses to be prepared in accordance with the following specifications:

(a) Theses must be typewritten and in triplicate. Ultimately one copy is deposited in the McGill Library, one in the Departmental Library, and one is returned to the candidate.

(b) The left-hand margin must have a uniform width of not less than 1½ inches; this rule also applies to diagrams, etc. Drawings, maps, plates, etc., if larger than the prescribed page, may be folded and subsequently bound in only if the flap is not larger than 7 x 11 inches. Larger drawings, maps, etc., must be folded down to not more than 7 x 10 inches, so that they may be placed in pockets in binding.

(c) The paper must be of a good bond grade, and is to be of uniform size, 8½ x 11 inches. Theses on inferior grades of paper will not be accepted. This applies to the first two copies.

(d) No binding is necessary, but the loose sheets must be placed, unfolded, in a manila envelope in the order of their pagination. On the outside of each envelope must be written clearly the name of the candidate, full title of thesis, degree, date, and Copy I, II, or III. Students are also asked to suggest a short title of not more than 55 letters (excluding their surname) for the lettering along the back of the bound copy.

(e) Copies of the thesis must be double-spaced and free from typographical and other errors, otherwise they will be returned to the candidate for revision, with consequent delay in the granting of the degree.

(f) Every thesis should have a sufficient table of contents and a thorough bibliography on the subject. Scientific theses should also contain an introductory historical statement of previous work or investigation, and a summary. In the case of the Ph.D. degree, there should be a clear statement of the claim of original work or contribution to knowledge made by the author.

(g) The candidate is required to declare, generally in the preface and specifically in the text of the thesis, the extent to which assistance has been given by members of the staff, fellow-students, technicians, or others, in the collection of material, the design and construction of apparatus, the performance of experiments, and the preparation of the thesis in general. This regulation does not apply to the normal supervision and advice given by the director of the candidate's research.

(h) If a thesis is rejected it cannot be submitted again, in a revised form, more than once (see Section 15).

(i) Unless there is a specific arrangement to the contrary, the candidate must understand that the University Library is free to allow the thesis to be consulted or borrowed, or to be issued in whole or in part in photostat or microfilm form.

SUMMARIES OR ABSTRACTS OF THESES

61. Three copies of a statement or abstract must also be presented, on a separate sheet, giving the author, title of thesis, and a summary not exceeding 150 words. One copy should be placed in each envelope, and the rules above as to format, margins, etc., will apply.

DEPARTMENT OF AGRICULTURAL BACTERIOLOGY

(Macdonald College)

Professor	_____ *Chairman*
Professor (Post-retirement)	P. H. H. GRAY
Associate Professor	R. H. WALLACE
Lecturer	_____

Adequate laboratory and library facilities are available for courses leading to higher degrees, and for research.

COURSES FOR HIGHER DEGREES

60. PHYSIOLOGY OF MICROORGANISMS (2 hours) *Professor Wallace*
Text: Werkman and Wilson, Bacterial Physiology (Academic Press).

61. SOIL MICROBIOLOGY (2 hours) *Professor Gray*
Texts: Waksman, Principles of Soil Microbiology (Williams & Wilkins); Russell, Soil Conditions and Plant Growth (Longmans).

62. FOOD MICROBIOLOGY (2 hours) *Professor Wallace*
Text: Tanner, Microbiology of Foods (Garrard).

63. COLLOQUIUM *Staff*
A written report on topics of current research in the candidate's field must be presented fortnightly.

REQUIREMENTS FOR THE MASTER'S DEGREE

1. Candidates are required to have the B.Sc. (Agr.) degree with high standing, or its equivalent with sufficient training in the subjects of the courses chosen for the higher degree. Students who lack such training must take the required courses of the final undergraduate year as well as courses in such other subjects as the department may require.

2. Candidates must take examinations in two of the courses listed above, either 60 with 61, or 60 with 62, and conform to the requirements of the colloquium.

3. The preparation of a thesis should require at least 20 hours of laboratory work per week. The thesis must be on a current research problem in agriculture, and may be completed at the end of one year's work.

4. Special arrangements can be made for candidates of recognized ability who wish to take studies in two major subjects.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates for the Ph.D. degree must have obtained first class Honours standing in their work for the B.Sc. (Agr.) degree, or its equivalent, or have submitted a thesis of outstanding merit for the M.Sc. degree; they must show in frequent conferences and colloquia that they possess sound critical ability and capacity for research. Candidates are urged to study the required modern languages before entering the Second year.

DEPARTMENT OF AGRICULTURAL CHEMISTRY

(Macdonald College)

Professors R. H. COMMON, *Chairman*
W. A. DELONG
H. G. DION

Assistant Professor B. E. BAKER

Lecturers P. A. ANASTASSIADIS
G. O. HENNEBERRY

The Department works in close liaison with the Department of Physics, Macdonald College, and laboratory facilities for research thus include equipment for the use of radioactive tracers, X-ray spectrophotometry, differential thermal analysis, flame photometry, petrological microscopy of soils, electron microscopy, and mass spectrometry.

COURSES FOR HIGHER DEGREES

60. CHEMISTRY OF SOILS

2 lectures per week, second term. *Professor DeLong*

(*Not given in 1957-58.*)

61. PLANT BIOCHEMISTRY

2 lectures per week, second term. *Professor DeLong*

451 and 452. CHEMISTRY OF FOOD AND FEEDING STUFFS AND ADVANCED FOOD ANALYSIS

2 lectures per week, both terms. *Professor Common*

63. INDUSTRIAL UTILIZATION OF FARM PRODUCTS

2 lectures per week, second term *Professors Common and Baker*

Special laboratory work (three hours per week) may be required in any of these courses.

REQUIREMENTS FOR THE MASTER'S DEGREE

1. Candidates are required to have the B.Sc. (Agr.) degree with honours standing, or an equivalent qualification. Students holding a B.Sc. degree may be accepted if they have taken appropriate undergraduate work in chemistry with sufficient biology; otherwise a qualifying year will be required.

2. Candidates for the Master's degree are required to take the examinations in two of the courses for higher degrees given in the Department.

3. Candidates may be required to take the examination in one of the cognate courses listed below:

At Macdonald College:

Either Experimentation (Department of Agronomy, Course 60) *or* Advanced Biophysics (Department of Physics, Course A).

At McGill University in Montreal:

Advanced Organic Chemistry (Department of Chemistry, Course A).

Advanced Physical Chemistry (Department of Chemistry, Course 44), Thermodynamics (Department of Chemistry, Course 35).

Cellulose, Lignin and Related Compounds (Department of Chemistry. Course L).

Protein Physical Chemistry (Department of Biochemistry, Course 44b).

Metabolism (Department of Biochemistry, Course 45).

REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates will be judged principally by their ability in research. Special arrangements for course work will be made with the McGill Departments of Chemistry and Biochemistry.

DEPARTMENT OF AGRONOMY

(Macdonald College)

Professor	L. C. RAYMOND
Associate Professors	H. A. STEPPLER, *Chairman* R. I. BRAWN
Assistant Professor	H. R. KLINCK
Lecturer	J. S. BUBAR

This Department is primarily concerned with crop breeding but, in addition, undertakes considerable research in various phases of crop production. All of the necessary equipment for such a program is available, including greenhouse space and adequate library facilities.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

Candidates who take Agronomy as a major subject must have had a good training and achieved high standing in Agronomy, Botany, Chemistry and Genetics. Those who have not had adequate training in these subjects will be required to take such courses as may be needed to rectify the deficiency.

To fulfil the minimum requirements, candidates are required to take courses 60 and 64 and at least two of the other courses listed below. One or at most two additional courses may be required in cognate subjects.

Shortly after registration a research problem is chosen, the results being presented as a thesis at the conclusion of the candidate's period of study. Since the research usually requires the growing of plants in the field, summer work — in addition to the academic sessions — is normally demanded. It is seldom possible to meet the full requirements in less than a year and one half, and frequently two full years will be required.

COURSES OFFERED

60. STATISTICAL METHODS

First term: 2 laboratory periods.

Second term: 2 lectures and 1 laboratory. *Professor Steppler*

Prerequisite: Math. 31 (Macdonald College) or its equivalent.

61. HAY AND PASTURE CROPS

2 lectures and 2 laboratory periods for 1 term.

Professor Steppler and Mr. Bubar

62. CORN AND ROOT CROPS

2 lectures and 2 laboratory periods for 1 term. *Professor Brawn*

63. GRAIN CROPS

3 lectures and 3 laboratory periods for 1 term. *Professor Klinck*

64. SEMINAR

Fortnightly during the year. *Professor Steppler and Staff*

57/58

DEPARTMENT OF ANATOMY

Professors	C. P. LEBLOND, *Chairman* C. P. MARTIN
Associate Professors	S. M. BANFILL J. LANGMAN
Assistant Professor	Y. CLERMONT
Hon. Lecturer	E. W. WORKMAN
Lecturers	L. HELLER B. E. WALKER

The department offers facilities for research work leading to the degrees of Master of Science and Doctor of Philosophy in Anatomy. The emphasis may be on Gross or Microscopic Anatomy.

QUALIFICATIONS FOR ADMISSION

For registration as a graduate student in Gross Anatomy, the candidate must hold a B.Sc. or M.D. degree and have completed with high standing the following courses in Anatomy at McGill (or their equivalent elsewhere): 1 (General Gross Anatomy), 2 (Neuro-anatomy), 6 (Histology), 8 (Embryology). Candidates for higher degrees will be required to repeat detailed study of general Gross Anatomy (course 1 or equivalent) at an advanced level.

For registration as a graduate student in Microscopic Anatomy, the candidate must hold a B.Sc. or M.D. degree and have displayed general proficiency in biological studies. During the First year, students will be required to complete the following courses with high standing: 6 (Histology), 7 (Experimental Morphology), 8 (Embryology), and to demonstrate the ability to conduct original research. During the following years, they will be required to extend their knowledge of Histology and to take Experimental Cytology (Genetics 53).

In both divisions, additional courses in anatomy or in cognate subjects may be required, in addition to the preparation of a thesis based on original research. Ph.D. candidates will write a comprehensive examination after the end of the Second year.

ADVANCED AND GRADUATE COURSES

4. ADVANCED NEURO-ANATOMY

2 evenings per week, first term. *Professor F. L. McNaughton (M.N.I.)*

5. PHYSICAL ANTHROPOLOGY

Times to be arranged. *Professor Martin*

6. EXPERIMENTAL MORPHOLOGY

(a) A seminar on theoretical problems of histology and histochemistry. 1 hour.

(b) A practical course on the planning of biological experiments, operative procedures on laboratory animals, histological techniques, histochemical reactions, radioactive elements (detection by radio-autographs and Geiger counter), photographic methods, etc. The practical course is limited to 6 students per year.

2 hours lecture and 4 hours laboratory per week. *Professor Leblond*

SCHOOL OF ARCHITECTURE

Professor JOHN BLAND, *Director*

Associate Professor HAROLD SPENCE-SALES

COMMUNITY PLANNING

An interdepartmental Committee of the Faculty of Graduate Studies and Research offers a programme of graduate training for those wishing to specialize in Community Planning. The Committee represents the Departments of Architecture, Economics, Political Science, Geography, Law, Social Work and Sociology. Candidates are required to meet the requirements for the Master's Degree of the departments in which they are registered. In addition candidates are required to attend a Graduate Seminar, Planning Workshop, and other courses that are recommended by the Committee according to the candidates' particular needs.

A number of Fellowships in Community Planning valued at $1,200 are usually offered every year by the Central Mortgage and Housing Corporation, Ottawa, from which particulars can be obtained.

Chairman of the Committee on Physical Planning
Professor H. Spence-Sales

1. SEMINAR IN COMMUNITY PLANNING

2 hours per week. *Professor Spence-Sales*

2. PLANNING WORKSHOP

2 hours tutorial and 8 hours problems. *Professor Spence-Sales*

COURSES FOR THE MASTER'S DEGREE IN ARCHITECTURE

1. ARCHITECTURAL DESIGN

2 hours tutorial and 18 hours problems and report per week.
Professor Bland

2. HOUSING.
2 hours tutorial and 18 hours problems and reports. *Professor Bland*

3. Candidates will be required to attend the Seminar in Community Planning and one other course bearing upon their theses.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Professor	R. W. REED, *Chairman*
Associate Professors	G. G. KALZ
	J. W. STEVENSON
Assistant Professors	FRITZ BLANK
	C. A. BUTAS
	K. F. GIRARD
	GRACE T. GIRVIN
	C. D. KELLY
	A. M. MASSON
Lecturers	J. A. DE VRIES
	E. MANKIEWICZ
	O. MORGANTE
	F. H. PRISSICK
	RAISSA SILOV

GENERAL QUALIFICATIONS FOR ADMISSION

A B.Sc. degree with at least second class Honours in Bacteriology and Immunology, or the degree of M.D.,C.M. with high standing in Bacteriology, Immunology, and Pathology, from McGill University, is required. The equivalent from elsewhere is recognized but this must be supported by confidential letters of recommendation from professors familiar with the candidate's work.

Candidates should forward their applications to the Dean before May 30th. Successful applicants will be notified before June 30th.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

Candidates who have satisfactorily completed the Honours course in Bacteriology as undergraduates may present themselves for examination for the M.Sc. degree at the end of one year's graduate work in the Department. Others may be required to spend two years in the Faculty of Graduate Studies and Research, the first of which will be taking a Qualifying Course comprising the Honours undergraduate Courses 42, 43b and 44 and such other courses as the Department approves. Candidates taking the Qualifying Course must reach a satisfactory standard in the examination at the end of the year to be permitted to proceed to the second year work. In cases where good and sufficient reason is shown, in terms of equivalent work, the Department may exempt a candidate from the

Qualifying Year. Exemption from a Qualifying Year may be gained by attaining second class marks in an Entrance Examination equivalent to the Examination for Honours in Course 42 and 43b. Candidates are required to present one topic for a Seminar and to attend Course 51 and with due approval may attend other courses in the University Departments. The candidate is required to pass a general examination in Bacteriology and Immunology, including subjects dealt with in Course 51, and may be required to pass examinations in courses prescribed by the Department. These examinations together with a thesis on a research problem will determine the award of the Degree in accordance with regulations.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates for the Ph.D. degree are required to have obtained a satisfactory standing in their work for the M.Sc. degree (McGill).

Candidates are required each year to present one topic for a Seminar and attend Course 51 and may be required to attend cognate courses in other Departments. Candidates are required to pass a general examination in Bacteriology and Immunology, but will be judged principally on the ability they display in research.

Candidates will be occupied mainly in original research and the preparation of a thesis in accordance with Faculty regulations.

ADVANCED UNDERGRADUATE COURSES

42. ADVANCED MICROBIOLOGY (one and a half courses). A systematic study of bacteria, viruses and medically important fungi. This class is limited in size and priority is given to honours students in the biological sciences.

Both terms: 3 lectures, 2 three hour laboratory classes.

Prerequisites: Bacteriology 31, Biochemistry 31.

Textbook: Topley & Wilson, Principles of Bacteriology and Immunology, 4th Edition (Arnold) 1956.

43b. IMMUNOLOGY (half course). A study of the fundamental aspects of antigen-antibody reactions and their practical applications.

Second term: One lecture, 2 three hour laboratory classes.

Prerequisites: as for course No. 42.

Textbook: Carpenter, Immunology and Serology (Saunders), 1956.

44. BACTERIOLOGY READING COURSE AND THESIS (full course). Students are required to write a 5,000 word review of the literature on a selected topic. The course is offered only to honours students in Bacteriology.

Prerequisites: as for course No. 42.

GRADUATE COURSES

51. GRADUATE SEMINAR

Lectures and discussions once a week. All graduate students are required to participate.

SPECIAL FACILITIES

The courses given by the Department in the Faculty of Arts and Science and the Faculty of Medicine are available to candidates for the M.Sc. and Ph.D. degrees.

The practice of the Clinical Bacteriology services to the Hospitals is available to candidates as a means of instruction and a source of material for research and study.

DEPARTMENT OF BIOCHEMISTRY

Professors	D. L. THOMSON, *Chairman* J. H. QUASTEL
Associate Professors	O. F. DENSTEDT K. A. C. ELLIOTT R. D. H. HEARD
Sessional Lecturers	ESAU HOSEIN MARGARET PURVIS P. G. SCHOLEFIELD

Candidates who have satisfactorily completed the Honours course in Biochemistry as undergraduates may present themselves for examination for the M.Sc. degree at the end of one year's graduate work in the Department; others will usually require a qualifying year. Candidates for the M.Sc. or Ph.D. must pass examinations in Biochemistry, but will be judged principally by the ability they display in research. Candidates for either degree are expected to attend the graduate courses listed below and may, according to their qualifications, be required to take undergraduate courses in Biochemistry or other cognate subjects. Research work will normally be carried on within the Department, where the main projects deal with blood chemistry and with the chemistry and metabolism of steroid hormones, but some students may be permitted to work on enzymology in the McGill Montreal General Hospital Research Institute, or on brain metabolism in the Montreal Neurological Institute, or in the biochemical laboratories of the Allan Memorial Institute of Psychiatry, or by special arrangement in other laboratories within the University.

ADVANCED UNDERGRADUATE COURSES

32. ENDOCRINOLOGY

1 hour. *Professor Thomson*

43. ADVANCED BIOCHEMISTRY

3 hours. *Professor Denstedt*

44a. NUTRITION

3 hours, first term. *Mrs. Purvis*

44b. PROTEIN PHYSICAL CHEMISTRY

3 hours, second term. *Professor Thomson*

45. OXIDATION AND METABOLISM

2 hours. *Professors Quastel and Thomson*

GRADUATE COURSES

62 and 63. ADVANCED ENDOCRINOLOGY I AND II.

These alternating courses are given jointly with the Departments of Medicine and Anatomy and others, and in co-operation with the Institute of Experimental Medicine and Surgery of the University of Montreal.

Course 63 deals with nitrogen-containing hormones; course 62 deals with steroid hormones. The former only will be given in 1957-58.

Texts: Selye, Textbook of Endocrinology; Pincus and Thimann, The Hormones (Academic Press).

71. FIRST GRADUATE SEMINAR

1 hour. *Staff*

72. SECOND GRADUATE SEMINAR

1 hour. *Staff*

73. THIRD GRADUATE SEMINAR

1 hour. *Staff*

Only one of the above seminars can be taken in any one session.

DEPARTMENT OF BOTANY

Professors	MURIEL V. ROSCOE, *Chairman*
	R. D. GIBBS
Associate Professor	C. M. WILSON
Assistant Professors	W. G. BOLL
	G H. N. TOWERS

Candidates who have satisfactorily completed the Honours course in Botany or its equivalent, if accepted, will enter immediately upon a programme of courses and research leading to either the M.Sc. or Ph.D. degree. (The Honours course in Botany consists of a minimum of six courses in advance of the elementary course, chosen from: Morphology, Taxonomy, Anatomy, Plant Physiology, Mycology, Plant Biochemistry, Genetics, Cytology, Economic Botany, Microtechnique and Morphogenesis with at least one course in Zoology and appropriate courses in Chemistry and Physics.)

Candidates who do not quite meet the requirements as set forth in the Honours Course may be accepted as full graduate students, but may be required to spend not less than two years on work for the M.Sc. degree.

Students with insufficient background to carry graduate work in Botany may enrol for a Qualifying Year and take such work as is prescribed up to a maximum of five full courses.

For the M.Sc. degree, a student must take a minimum of two full courses (or the equivalent in half courses) from those offered below. On the advice of the Director of Research one cognate course may be substituted. He will also carry out his research project and write a thesis. It is possible for well-qualified candidates to present themselves for the M.Sc. degree at the end of one year of graduate work.

For the Ph.D. degree, a student will take such additional courses as are required to round out his general background as well as those which relate to his particular line of specialization. In any case, he must take at least one course not included in his M.Sc. programme. Ph.D. candidates must pass a general examination in Botany and also demonstrate ability in research and preparation of a thesis.

The Department specializes in work bearing on comparative anatomy of vascular plants, morphology of reproduction, embryo-sac studies, carbohydrate and nitrogen metabolism, respiration and photosynthesis, comparative chemistry of plants as related to taxonomy, tree physiology, cytology, life histories of the lower fungi and morphogenesis.

Adequate laboratory and library facilities are available for research.

COURSES FOR HIGHER DEGREES

33. PLANT BIOCHEMISTRY

2 lectures; 2 laboratory periods. *Professors Gibbs and Towers*

(*Given in 1957-58; not given in 1958-59.*)

41. MICROTECHNIQUE

1 lecture; two laboratory periods. *Professor Roscoe*

45. PLANT MORPHOGENESIS (Full course). A survey of the physiological, biochemical, and genetic approaches to the experimental study of plant morphogenesis, including growth correlation, the function of plant hormones and the environmental control of plant development and morphology.

First term: 2 hours lectures and 3 hours laboratory.

Second term: 2 hours lectures and weekly seminar.

Prerequisite: Botany 11a, 11b, 31, and Genetics 21.

(*Not given in 1957-58; given in 1958-59.*)

Professor Boll

61. ADVANCED PLANT PHYSIOLOGY

2 lectures with laboratory. *Professors Towers and Boll*

63. PLANT ECOLOGY

Lecture, conference, field, and laboratory work. ———

64. ANATOMY OF REPRODUCTION (Half course)

Lecture, conference, and laboratory work. *Professor Roscoe*

65. ADVANCED MYCOLOGY

Seminar, 2 hours. *Professor Wilson*

66. SPECIAL TOPICS (Full course or half course)

Prescribed reading, conference, and practical work on selected topics within Anatomy, Physiology, Taxonomy, Phytogeography, Ecology, Mycology, Plant Biochemistry, etc. *The Staff*

DEPARTMENT OF CHEMICAL ENGINEERING

Professor J. B. PHILLIPS, *Chairman*
Lecturer T. W. HOFFMAN
Special Lecturer WILLIAM GAUVIN

61. CHEMICAL ENGINEERING

3 hours. *Professor Gauvin*

Selected topics from flow of fluids, heat transfer, diffusional operations, distillation, etc.; assignment of advanced problems. This course is open only to students who have had a previous course in Unit Operations.

62. MASS AND HEAT TRANSFER TO SMALL PARTICLES. The dynamics, physico-chemical properties, and thermodynamics of small particles. Application of the fundamental principles to the problem of mass and heat transfer in pneumatic transport, fluidization, spray drying and flash drying.

2 hours. *Professor Gauvin*

MASTER'S DEGREE IN CHEMICAL ENGINEERING

Students who hold a Bachelor's degree in Chemical Engineering have the option of studying for the Master of Science degree in Chemistry or the Master of Engineering degree in Chemical Engineering. Students who have completed the latter degree may apply to continue towards the Ph.D. in Chemical Engineering.

The following courses are required for the Master of Engineering degree:

I. Chemical Engineering 61 or 62, with one of the following: Chemistry A, Chemistry 31 and 41, Chemistry 44.

II. One of the following: Chemistry N, Chemistry 35, Physics 34, Chemistry L and 46.

III. Chemical Engineering Colloquium.

IV. Thesis on a Chemical Engineering subject. The experimental work would be in heat transfer, distillation, absorption, extraction, drying, and applied physico-chemical problems.

DEPARTMENT OF CHEMISTRY

Professors	C. A. Winkler, *Chairman*
	W. H. Hatcher
	C. B. Purves
Associate Professors	J. H. Mennie
	R. V. V. Nicholls
	A. S. Ross
	A. Taurins
	L. Yaffe
Assistant Professors	R. K. Holcomb
	H. I. Schiff
	A. Sehon
Lecturers	J. T. Edward
	M. Onyszchuk
Sessional Lecturer	R. F. Robertson
Honorary Lecturer	J. H. Ross
Research Associates	D. A. I. Goring
	S. G. Mason
	W. A. Mueller
	A. A. Robertson
	H. T. K. Ruck
	T. Timell

Adequate laboratory and library facilities are available for the courses listed below and for research. The Pulp and Paper Research Institute affords ample facilities for research on the structure and properties of carbohydrates, cellulose, lignin, wood, and pulp and paper.

Any of the following courses may be required of a student who is admitted to the Graduate School if the equivalent has not been taken previously.

31. ATOMIC STRUCTURE AND VALENCE THEORIES

2 hours. *Professor Mennie*

34. KINETIC THEORY. Kinetic theory of gases; mathematical relations for molecular velocity, collision frequency, viscosity, thermal conductivity, diffusion, etc.; imperfect gases.

1 hour. *Professor A. S. Ross*

Reference Books: Jeans, Introduction to Kinetic Theory of Gases (Cambridge University Press); Glasstone, Textbook of Physical Chemistry 2nd ed. (Van Nostrand).

34L. PHYSICAL CHEMISTRY LABORATORY (INTERMEDIATE). Simple physico-chemical methods of investigating kinetic and thermodynamic properties of gases, liquids, and solutions.

3 hours laboratory. *Professor A. S. Ross*

Text: Daniels, Mathews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

Reference Books: Livingston, Physico Chemical Experiments (Macmillan); Palmer, Experimental Physical Chemistry (Cambridge).

35. CHEMICAL THERMODYNAMICS. First and second laws, entropy, free energy, fugacity and activity, partial molal quantities.

2 hours. *Dr. Robertson*

Texts: Klotz, Chemical Thermodynamics (Prentice-Hall); Lewis and Randall, Thermodynamics (McGraw-Hill).

Reference Book: Paul, Principles of Chemical Thermodynamics (McGraw-Hill).

40. CHEMISTRY AND TECHNOLOGY OF HIGH POLYMERS. Organic (carbon) and inorganic (silicon) polymers; nature of polymeric molecules; relationship between molecular structure and physical, chemical and mechanical properties; experimental methods for controlling and determining structure of polymers; properties of commercially available materials; methods of fabrication.

1 hour. *Professor Nicholls*

41. INORGANIC CHEMISTRY. Descriptive inorganic chemistry based on the Periodic Table.

2 hours. *Professor Mennie*

42. STEREOCHEMISTRY AND REACTION MECHANISMS. Optical and geometrical isomerism; Walden inversion; steric hindrance; molecular conformation; reaction mechanisms.

2 hours. *Dr. Edward*

References: Klyne, Progress in Stereochemistry (Butterworth); Alexander, Ionic Organic Reactions (Wiley); Hines, Physical Organic Chemistry (McGraw-Hill).

42L. ORGANIC QUALITATIVE ANALYSIS LABORATORY. Identification and separation of mixtures of organic compounds.

9 hours laboratory, first term. *Dr. Edward*

Laboratory Text: Shriner, Fuson and Curtin, The Systematic Identification of Organic Compounds, 4th ed. 1956 (Wiley).

44. CHEMICAL KINETICS. Rates of homogeneous and heterogeneous reactions; activation energy; theories of reaction mechanisms.

1 hour. *Dr. Sehon*

Texts: Laidler, Chemical Kinetics (McGraw-Hill); Glasstone, Textbook of Physical Chemistry (Van Nostrand).

References: Frost and Pearson, Kinetics and Mechanism (Wiley); Hinshelwood, Kinetics of Chemical Change (Oxford); Trotman-Dickenson, Gas Kinetics (Butterworth).

44L. PHYSICAL CHEMISTRY LABORATORY (ADVANCED). More advanced physicochemical methods applied to equilibria, reaction kinetics, colloids, and electrochemistry.

6 hours laboratory. *Professor A. S. Ross*

Text: Daniels, Mathews, Williams, Bender and Alberty, Experimental Physical Chemistry, 5th ed. (McGraw-Hill).

Reference Books: Weissberger, Technique of Organic Chemistry, Vol. I, Physical Methods, Vol. IV, Distillation, Vol. VIII, Investigation of Rates and Mechanisms of Reactions (Interscience); Reilly and Rae, Physico Chemical Methods (Van Nostrand).

45. CHEMICAL THERMODYNAMICS (ADVANCED)

2 hours, plus problem class. *Professor Schiff*

Reference Books: Sillén, Lange and Gabrielson, Problems in Physical Chemistry (Prentice-Hall); Lewis and Randall, Thermodynamics (McGraw-Hill); Klotz, Chemical Thermodynamics (Prentice-Hall); Paul, Principles of Chemical Thermodynamics (McGraw-Hill); Dole, Introduction to Statistical Thermodynamics (Prentice-Hall).

46. COLLOID CHEMISTRY. Descriptive, thermodynamic and kinetic treatment of properties of surfaces, sols, emulsions, gels.

1 hour. *Dr. Robertson*

Reference Books: Weiser, Colloid Chemistry, 2nd ed. (Wiley); Adam, Physics and Chemistry of Surfaces, 3rd ed. (Oxford); Brunauer, Adsorption of Gases and Vapors, Vol. I (Princeton); Alexander and Johnson, Colloid Science (Oxford); Harkins, Physical Chemistry of Surface Films (Reinhold); Jirgensons and Straumanis, Short Textbook of Colloid Chemistry; Gregg, The Surface Chemistry of Solids (Reinhold).

47. ELECTROCHEMISTRY. Electrolytic conduction and electrolysis; Faraday's laws; specific and equivalent conductance and measurement of conductance; mobility and transport number; theory of strong electrolytes; thermodynamics of cells; electrode potentials; concentration cells, liquid junction potentials; overvoltage and polarization phenomena.

1 hour. *Professor Schiff*

Text: Glasstone, Introduction to Electrochemistry (Van Nostrand); MacInnes, The Principles of Electrochemistry (Reinhold).

GRADUATE COURSES

A. THEORETICAL ORGANIC CHEMISTRY. Interpretation of molecular structure, and reactivity of organic compounds in terms of electronic structure, resonance and molecular orbitals. Mechanisms of organic reactions, ionic and free radical, including substitution, addition, elimination, rearrangement and polymerization. Fundamental principles of ultraviolet, visible and infrared spectrophotometry.

3 hours. *Dr. Taurins*

B. ADVANCED TOPICS IN ORGANIC CHEMISTRY. Selected topics, including the chemistry of heterocyclics.

2 hours. *Professors Purves, Taurins and Dr. Edward*

C. SELECTED TOPICS IN POLYMER AND COLLOID SCIENCE. The topics include the following: Solution properties of macromolecules; kinetics of polymerization; determination of molecular weight and shape; phase transitions in polymers; X-ray diffraction; monomolecular layers; stability of colloids; electrical double layers; polyelectrolytes; proteins, etc.

2 hours (*not given in 1957-58*). *Dr. Mason and Associates*

D. CHEMICAL KINETICS. Advanced treatment of selected topics in chemical kinetics and photochemistry.

2 hours. *Dr. Sehon*

F. RADIOCHEMISTRY. Nuclear properties; semi-empirical mass formula; isobaric behaviour; modes of radioactive decay; nuclear reactions; compound nucleus; cross-sections; high energy reactions; instruments and techniques used in measurement and study of radiations; methods of isolation, concentration and identification of radioactive nuclides; chemistry of low concentrations; some applications of radioactive tracers.

1 hour. *Professor Yaffe*

G. SELECTED TOPICS IN RADIOCHEMISTRY. This course is designed to be of a more general nature than Chemistry F. A number of lectures will be given dealing with fundamentals of radio-chemistry, radio-tracer techniques and applications. The remainder of the lectures will be devoted to special topics including isotope effects, exchange reactions, C^{14} dating technique, synthesis of the new elements, etc.

1 hour. *Professor Yaffe*

J. COLLOQUIUM—ORGANIC

Each student is required to participate in Research Colloquia which are held bi-monthly. These involve the presentation and discussion of papers dealing either with the student's own research or with recent research publications.

K. COLLOQUIUM—INORGANIC AND PHYSICAL

As above.

L. CELLULOSE, LIGNIN, AND RELATED COMPOUNDS. The chemistry of some typical polysaccharides, including plant gums, pectins and hemicelluloses, is first outlined; wood lignin, the linear structure, the polymolecularity, and the supermolecular structure of cellulose are then discussed.

2 hours. *Professor Purves*

N. CHEMICAL PHYSICS. Critical and original essays are required on various subjects such as chemical kinetics, photochemistry, molecular structure, etc.

2 hours. *Professor Winkler*

T. STATISTICAL THERMODYNAMICS

2 hours. *Professor Schiff*

APPLICATIONS FOR ADMISSION

In addition to official transcripts (in duplicate) of the academic record, the Department of Chemistry requires two confidential letters of recommendation from professors familiar with the applicant's work and a small unmounted photograph. If an applicant is already employed, a letter from his employer is also desirable.

If possible a candidate should specify the field of research in which he is interested.

Candidates accepted for graduate work may begin research on June 1st.

Those students in the Graduate School who are awarded demonstratorships are required to devote not more than 12 hours of instruction in undergraduate laboratories per week during the academic session.

REQUIREMENTS FOR THE MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY DEGREES

I. Students must take such examinations as may be required in (a) Organic, (b) Inorganic and Radiochemistry, (c) Physical, (d) Colloid Chemistry, (e) Cellulose Chemistry and (f) assigned cognate courses given in other departments.

II. Research in this Department may be conducted in: (a) Organic Chemistry, (b) Inorganic and Radiochemistry, (c) Physical Chemistry, (d) Colloid Chemistry, (e) Cellulose Chemistry.

III. Thesis on the candidate's research.

IV. Oral examination on the thesis and related subjects, required only of candidates for the Ph.D. degree.

FINANCIAL ASSISTANCE

It is usually possible to provide financial assistance during the four summer months. Financial assistance during the academic session is generally available in the form of demonstratorships or scholarships and occasionally by payment from research funds.

EXAMINATIONS IN CHEMISTRY

1. Examinations are normally taken by the candidate in May. In special circumstances, and with the permission of the Department, they may be taken in September.

2. A supplemental examination in any subject may be taken only on recommendation by the Department, confirmed by the Dean.

3. All examinations other than those in certain special courses must be passed before the candidate enters his final year, except in special circumstances and then only with the approval of the Department.

4. A candidate who may wish to take examinations in any one or more subjects in September of his entrance year is advised to consult the Chairman of the Department as soon as possible.

5. Students who register for an M.Sc. degree at McGill may, with the approval of the Department and the Dean of the Graduate Faculty, continue to the Ph.D. degree without submitting a Master's thesis.

6. The candidate, on entering Graduate School, must consult with his Director of Research regarding his proposed course of study, which must be approved by the Department and the Dean of the Graduate Faculty.

DEPARTMENT OF CIVIL ENGINEERING AND APPLIED MECHANICS

Professors	_____ *Chairman*
	CARLETON CRAIG
Associate Professors	J. L. DESTEIN
	ANDREJS PAKALNINS
Assistant Professors	D. F. COATES
	J. O. MCCUTCHEON

Adequate laboratory and library facilities are available for the courses listed below. Facilities for research are available in the following fields:

(a) reinforced concrete structures

(b) strength and stability of steel and light alloy structures

(c) soil mechanics

(d) hydraulics

COURSES FOR THE MASTER'S DEGREE

60. STATICALLY INDETERMINATE STRESSES

First term, 2 hours tutorial, and 6 hours computation and reports.

Professor McCutcheon

61. TECHNICAL ELASTICITY

First term, 2 hours tutorial, and 6 hours computation and reports.

Professor Craig

62. SEMI-RIGID ANALYSIS AND SECONDARY STRESSES

First term, 2 hours tutorial, and 6 hours computation and reports.

Professor deStein

63. HIGHWAY ENGINEERING

4 hours tutorial, and 12 hours computation and reports.

Professor Pakalnins

64. HYDRAULICS

First term, 2 hours tutorial, and 6 hours computation and reports.

Professor Craig

65. SOIL ENGINEERING

First term, 2 hours tutorial and 6 hours computation and reports.

Professors Coates and deStein

66. MUNICIPAL ENGINEERING

Advanced course of design and economics of Public Water Supply, Sewerage, Sewage and Wastes Treatment.

First term, 4 hours tutorial, and 6 hours computation and reports; second term, 2 hours tutorial.

Professor Pakalnins

Candidates for the M.Eng. degree will be expected to take at least two courses in addition to thesis work.

DEPARTMENT OF CLASSICS

Professor (Post-retirement)	C. H. CARRUTHERS
Associate Professors	P. F. MCCULLAGH, *Chairman*
	E. M. COUNSELL
Assistant Professor	C. D. GORDON
Lecturer	G. R. VALLILLEE

COURSES FOR THE DEGREE OF MASTER OF ARTS

CLASSICS 60. STATE AND INDIVIDUAL: POLITICAL AND ETHICAL CONCEPTS OF THE GREEKS AND ROMANS

An intensive study of selected source material (Greek and Latin), illustrating various stages of ethical and political thought in the ancient world.

2 hours colloquia. *Professor McCullagh*

GREEK 61. HISTORY OF THE EPIGRAM

2 hours colloquia. *Professor Carruthers*

GREEK 62. READINGS IN THE GREEK HISTORIANS

3 hours. *Professor Gordon*

GREEK 63. HOMER, ODYSSEY.

3 hours. *Mr. Vallillee*

LATIN 70. LUCRETIUS

Lucretius' status as poet, philosopher and scientist.

3 hours. *Professor Carruthers*

LATIN 72. LATIN EPIGRAPHY AND PALAEOGRAPHY

2 hours colloquia. *Professor Carruthers*

LATIN 73. LATIN OF THE SILVER AGE

2 hours colloquia. *Professor Counsell*

LATIN 74. CICERO THE HUMANIST

An examination of selected ethical, political and religious writings of Cicero.

2 hours colloquia. *Professor McCullagh*

LATIN 75. ROMAN HISTORY

A study of the original Latin sources, literary and epigraphic, dealing with selected problems of late republican and early imperial history.

2 hours colloquia. *Professor Gordon*

COURSES IN COMPARATIVE PHILOLOGY

Professor C. H. CARRUTHERS

80. INTRODUCTION TO THE STUDY OF LANGUAGE (LINGUISTICS 21)

81. LATIN HISTORICAL GRAMMAR

82. GREEK HISTORICAL GRAMMAR

83. ELEMENTARY SANSKRIT

84. GREEK DIALECTS

85. OSCAN AND UMBRIAN

All courses except No. 80 are colloquia of two hours weekly. Course No. 80 is listed as Linguistics 21 in the announcement of the Faculty of Arts and Science, and is open to graduate or undergraduate students.

Subjects for M.A. theses must be determined in consultation with the Department.

FACULTY OF DIVINITY

Professors
G. B. Caird
S. B. Frost
R. H. L. Slater
W. C. Smith

Associate Professor
H. H. Walsh

Lecturer
K. H. Rogers

Requirements for admission to the course leading to the degree of *Sanctæ Theologiæ Magister* (S.T.M.) are stated on page 2626. The usual rules and regulations of the Faculty will apply. In the special field of Comparative Religion, the M.A. degree is also offered, for candidates who do not have the B.D. or its equivalent.

The staff is prepared to offer a selection from the following list of courses, and to guide students in thesis research on approved topics, within each of the following fields: Old Testament language and literature; New Testament language and literature; Systematic Theology, including Christian Ethics; Philosophy and Psychology of Religion; Church History; and Comparative Religion. To each approved student appropriate courses (approximately three) will be assigned, on occasion including courses offered by other Departments such as Philosophy, History, Classics, or Islamic Studies. Graduate students in these Departments may be permitted or required to take courses currently offered in Divinity.

Adequate library facilities are available in Divinity Hall and elsewhere for the courses listed, and for research.

COURSES FOR THE S.T.M. DEGREE

61. THE DOCTRINE OF THE TRINITY
2 hours. *Professor Slater*

65. THE NATURE AND FUNCTION OF THE CHURCH
2 hours. *Professor Slater*

66. APPLIED PSYCHOLOGY OF RELIGION
2 hours. *Dr. Rogers*

73. THE SEPTUAGINT AND THE NEW TESTAMENT
2 hours. *Professor Caird*

74. ST. PAUL'S EPISTLE TO THE ROMANS
2 hours. *Professor Caird*

75. CONTEMPORARY PROBLEMS IN NEW TESTAMENT THEOLOGY

Professor Caird

84. THE QUMRAN COMMUNITY

2 hours. *Professor Frost*

90. INTRODUCTION TO CANADIAN CHURCH HISTORY. The origins of the various churches in Canada.

2 hours. *Professor Walsh*

91. PROBLEMS OF CHURCH AND STATE. A study of the relations of Church and State during the revolutionary period in France.

2 hours. *Professor Walsh*

COURSES IN COMPARATIVE RELIGION FOR THE S.T.M. AND M.A. DEGREES

101. HISTORICAL DEVELOPMENT OF ISLAMIC THEOLOGY. See page 2702.

2 hours. *Professor Smith*

102. ISLAM AND THE MODERN WORLD. See page 2702.

2 hours. *Professor Smith*

103. SEMINAR IN COMPARATIVE RELIGION. The multi-religiousness of mankind, considered socio-politically, philosophically, and, from the viewpoint of each of the major world faiths, theologically.

Note: This seminar will not be held unless members of at least two different religions participate.

2 hours. *Professor Smith*

104. THE SIGNIFICANCE OF "NIRVANA" with special reference to Hinayana Buddhism.

2 hours. *Professor Slater*

105. CHRISTIANITY AND OTHER RELIGIONS

2 hours. *Professors Slater and Smith*

The courses in Islamic religion are given in conjunction with the Institute of Islamic Studies (see page 2701). Other courses will be made available if qualified students present themselves.

Note: Graduate Courses in Philosophy of Religion will be announced at the beginning of the Academic Year.

DEPARTMENT OF ECONOMICS AND POLITICAL SCIENCE

Professors	D. B. MARSH, *Chairman*
	E. F. BEACH
	G. E. G. CATLIN
	F. C. JAMES
	D. L. MACFARLANE
	H. D. WOODS
	D. M. WRIGHT
Associate Professors	IRVING BRECHER
	K. B. CALLARD
	J. T. CULLITON
	W. E. HAVILAND
	M. C. KEMP (*on leave of absence*)
	J. R. MALLORY
	J. C. WELDON
Assistant Professors	D. E. ARMSTRONG
	MICHAEL BRECHER
	S. J. FRANKEL
	R. C. PRATT
Lecturer	T. ASIMAKOPOULOS

GRADUATE SEMINARS IN ECONOMICS

A graduate seminar will normally meet for two hours each week throughout one term. Reading and preparation requires substantial additional time. The seminars listed below include both economics and political science. At the graduate level the student is expected to concentrate wholly on economics or on political science.

61. THEORY OF THE FIRM I. A specialized study of the theory of the process of the firm.

First term. *Professor Beach*

62. THEORY OF THE FIRM II. A study of the theory of the firm as adapting itself to, and cushioning itself from, often unforeseeable economic and technical change, cyclical movements, and social disturbance; also as initiating innovation.

Prerequisite: Economics 61. *Professor Wright*

63. AGRICULTURAL ECONOMICS. The nature of agricultural production; the economics of size in agriculture; intensity of production; the pricing mechanism for farm products; agriculture in world commerce, FAO, ITO; the role of agriculture in the Canadian economy; economic problems confronting the Canadian farm industry.

First term. *Professor MacFarlane*

64. MACRO-ECONOMICS. Determinants of the general levels of income, employment, prices, production; economic fluctuations; economic trends; under-employment equilibrium and secular stagnation; conditions of economic progress; fiscal and monetary policies for maintaining full employment and preventing inflation.

First term. *Professor Wright*

65. ECONOMETRICS. The application of mathematics and statistics to the study of economics. An acquaintance with calculus and elementary statistics is assumed.

Second term. *Mr. Asimakopoulos*

66. AGRICULTURAL POLICY. The objectives of policy and the use of economic analysis as a guide to the appraisal and formation of agricultural policy; means of contributing to a solution of the problems confronting agricultural producers; the pricing of farm products; the resource and income problems; methods of achieving greater stability for agriculture and of facilitating economic progress.

Second term. *Professor Haviland*

Prerequisite: Economics 63.

67. LABOUR ECONOMICS. Special problems of labour and management.

Second term. *Professor Woods*

68. POLITICAL THEORY

Second term. *Professor Catlin*

Prerequisite: Political Science 311 or its equivalent.

69. POLITICAL INSTITUTIONS. A study of the problem of governments and politics in a selected area. *Professor Mallory*

71. THEORY OF ECONOMIC CHANGE. Methodological critique of modern, Keynesian, and classical theories of economic change and development, restatement of problems for analysis, analytical study of models involving population and technological changes in the economy as a whole and the cultural conditions accompanying them.

First term. *Professor Wright*

72. INTERNATIONAL ECONOMICS. Selected problems in the theory of international trade and foreign exchange. *Professor Marsh*

73. ADVANCED MONETARY THEORY.

Second term. *Professor Marsh*

74. WELFARE ECONOMICS. This course is intended for graduate students who have had a course in advanced theory and who, in particular, are well acquainted with modern demand theory. It is intended as a supplement to descriptive and analytical economics.

First term. *Professor Kemp*

76. PUBLIC ADMINISTRATION. A problem of contemporary administrative interest will be selected for analysis. The exact topic will be announced later.

Second term. *Professor Callard*

78. REGIONAL PLANNING (ARCHITECTURE B). A seminar on the problems of regional planning, not for course credit.

Both terms. *The Inter-Departmental Committee on Regional Planning*

79. TRANSPORTATION. A study of the economics of transportation; its relation to the general body of economic theory; government regulation with emphasis on factors that fashion it.

Both terms. *Professor Culliton*

THE STAFF SEMINAR

The Staff Seminar of the Department of Economics and Political Science meets once each week during term to discuss papers presented by members of the staff and, occasionally, by visitors to the university. All graduate students are entitled to attend. The purpose of the Seminar is to enable staff and students to discuss informally topics of current research interest in the belief that such regular discussion will stimulate the research of staff and students alike.

Students who have obtained at least second class standing in the honours B.A. course in Economics and Political Science in McGill University, or who have completed at least three full courses in Agricultural Economics at Macdonald College and at least two full courses in Economics and Political Science at McGill, with at least second class standing, are eligible for admission to the M.A. course. Students who hold the B.Com. from McGill with at least second class standing over-all and in all the required courses in Economics are eligible for admission to the M.Com. course. Students with equivalent qualifications from other approved institutions are also admissible. Since graduate work is normally undertaken in only one of the two subjects within the Department, i.e. Economics or Political Science, applicants may be admitted who have acceptable qualifications in either Economics or Political Science.

REQUIREMENTS FOR THE MASTER'S DEGREE

Candidates for the Master's degree must pass the examinations set on the work of two of the Seminars listed above. In addition all candidates are required to prepare themselves, under the direction of a member of the Department, for a Comprehensive Oral Examination in three fields of study, one of which must be Political or Economic Theory. The results of these examinations will determine not only the candidate's qualifications for the Master's degree, but also if he may continue for doctoral study. A pass for the Master's degree does not necessarily imply permission to proceed for the doctorate.

Preparatory work for the Comprehensive Oral Examination. In preparing for the Oral Examination candidates will follow courses of reading or lectures which their directors of research may consider necessary in each individual case.

Optional Fields for the Comprehensive Oral Examinations:

Economic Theory; Economic History; Economic Policy; Money and Banking; Labour Economics, International Economics; Agricultural Economics; Economics of Transportation; Political Theory; Comparative Government; American Government; British Commonwealth Governments; Canadian Government; Public Administration; International Law and Organization.

A Thesis on an approved subject is required.

REQUIREMENTS FOR THE Ph.D. DEGREE

Students who have achieved high standing in the M.A. in Economics, or Political Science, or the M.Com., at McGill University, or have equivalent qualifications, may be permitted to proceed to the Ph.D. in two further years, one of which may be spent at an approved institution elsewhere. Students from institutions other than McGill are required, in their first year of residence, to pass the two seminars prescribed for the Master's degree. Students for the Ph.D. are required to take one additional seminar in their second year of residence at McGill, and additional seminars may be required of particular students in that year if recommended by the student's director of studies. In the case of additional seminars beyond the two required for the M.A., the Department may, in the case of students permitted to spend one or more years at another university, recognize seminars taken there in fulfilment of this requirement.

All candidates for the Ph.D. must pass a comprehensive oral examination in three fields of study, one of which must be Political or Economic Theory. The examination must be offered from among the fields of study enumerated under *Requirements for the Master's Degree*, and is set at a higher standard than that required for the Master's degree.

All doctoral candidates must pass an examination in unseen translation from authors in two modern languages other than English. French-speaking candidates may translate into French, but in that case one of the languages from which they translate must be English. A Thesis on an approved subject is required.

McGill University is now prepared to offer instruction at the Master's level in all the usual branches of Economics and Political Science. For the Ph.D., however, McGill is prepared to accept candidates only in the following branches: Economic Theory, Public Finance, Fiscal and Monetary Policy; Banking; International Trade; Employment Theory; Labour Economics, including wage theory and policy; Regional Economics and Economic Geography; Agricultural Economics; Political Theory; Legal Theory; Comparative Government and Comparative Legal Systems; Canadian Government and Constitution; Commonwealth Governments and Commonwealth Relations.

GRADUATE PROGRAMMES IN CO-OPERATION WITH OTHER DEPARTMENTS

The general requirements of the Department for the Master's degree, viz. the Comprehensive Oral Examination (including the required subject in political or economic theory), the two required Seminars, and the Thesis, must be met by all candidates. The two following programmes for candidates with specialized interests are offered in co-operation with other Departments in the Faculty of Graduate Studies. Programmes can also be arranged in co-operation with the Institute of Islamic Studies.

1. COMMUNITY PLANNING

An inter-departmental Committee of the Faculty of Graduate Studies offers a programme of graduate training for those wishing to specialize in Community Planning. The Committee represents the Departments of Architecture, Engineering, Geography, Sociology, and Economics and Political Science. Specialized instruction in the form of a Graduate Seminar, Courses of Instruction, and Laboratory Work is offered by qualified members of the Departments concerned. Candidates are required to meet the degree requirements of the departments in which they are registered. Students in Economics and Political Science will offer the Seminar in Community Planning (listed as Course No. 78 above) as one of the required Seminars for the degree, and will write a thesis on a topic related to Community Planning.

2. INTERNATIONAL RELATIONS

Candidates wishing to specialize in International Relations will be expected to meet the normal degree requirements of the Department, while offering International Law and Organizations as one of the fields

for the Comprehensive Examination, and writing a thesis on an approved topic in international relations. Supplementary courses of interest to students in International Relations may be found in the Department of History, Faculty of Law, and Department of Geography, and in the Institute of Islamic Studies. Students who require them may take such courses, with the consent of the department concerned. Where appropriate Graduate Seminars are offered, as in the Faculty of Law or in Islamic Studies, they may, with the consent of the department or faculty concerned and the Department of Economics and Political Science, be offered in fulfilment of the Seminars required in Economics or Political Science.

3. ISLAMIC STUDIES

Students may, with the approval of the Department and of the Institute of Islamic Studies, take certain courses offered in Islamic Studies as part of a programme emphasizing the problems of the Islamic World. Students will be required to meet the normal degree requirements of the Department, together with appropriate courses in Islamic Studies, and write their theses on problems in some area of economics or political science relevant to Islamic studies. In certain cases a graduate seminar in Islamic Studies may be substituted for one of the seminars required to be taken in the Department. In general, the above programme may be permitted for students in Political Science whose main field of study is Comparative Government, International Relations, or Political Theory, and students in Economics whose main field is either the Theory of Economic Development or Economic History.

NOTE FOR CANDIDATES FROM THE UNITED STATES OR ABROAD

Candidates from the United States or elsewhere are advised that a Canadian honours degree in Economics and Political Science ordinarily comprises a reasonable acquaintance with the theoretic literature in both fields, a knowledge of the development of the science, and some degree of specialization in one field or the other.

DEPARTMENT OF EDUCATION

Professors	C. E. SMITH, *Chairman*
	C. WAYNE HALL
	D. C. MUNROE
Associate Professor	A. B. CURRIE
Assistant Professor	FRANCES E. CROOK

The course leading to the degree of Master of Arts is intended to encourage teachers who have completed the basic academic and professional training to proceed with further graduate studies. Many will wish to develop and perfect the teaching procedures in certain subject areas so that they may improve their technical skill; others will wish to deepen their knowledge of the historical and philosophical foundations of education; some will be interested in specialized studies in psychology and sociology; administrative and supervisory officers will benefit from research in school organization and procedure. In addition to those who enter the course from professional interest, there may also be some who wish to study the relationship of education to other cultural disciplines and aspects of public administration. For students in all these categories the course provides unusual opportunities for advanced study.

ENTRANCE REQUIREMENTS

Candidates with Honour Standing in the course leading to the B.Ed. degree in McGill University will be accepted *or* candidates holding the B.A. or B.Sc. degree in McGill University or a University of recognized standing will be admitted under the following conditions:

(a) Honour Standing in at least one continuation subject to be chosen from the following: English, French, History, Geography, Mathematics, Latin, Physics, Chemistry, Botany-Zoology.

(b) Honour Standing in the course leading to the High School Diploma (or the equivalent).

Candidates from other institutions whose qualifications do not meet these requirements may be permitted to register in qualifying courses. These include the various continuation subject fields, Educational Psychology, History of Education, Tests and Measurements. If there is sufficient registration these may be offered in an additional Summer School.

PROGRAMME OF THE COURSE

The course begins with a Summer Session in July which is followed by a Winter Session of part or full-time study and a second Summer Session. It may be completed in a minimum of fifteen months. The inclusive fee of $400 will become due as follows: for the first Summer Session, $150; for the Winter Session, $125; for the second Summer Session, $125. Applications for admission to the first Summer Session must be made before June 15th 1957. The Summer Session commences on July 2nd, which is also the last day for the submission of sessional registration forms.

During the first Summer Session the students will attend seminars in Educational Thought and Methods of Educational Research. The purpose of these studies is to give the candidate a broad and thorough preparation in choosing an area of concentration and subject for the graduate thesis.

During the Winter Session the student will choose one of the following areas of concentration:

1. Methods of Teaching a Special Subject
2. History and Philosophy of Education
3. Educational Psychology and Sociology
4. Educational Administration

Seminars will be held weekly in each of these subjects and the candidate will begin his research project and the preparation of the thesis under the director of research in his special area of study.

During the final Summer Session the candidate will attend seminars in Educational Sociology and Modern Educational Practice. These are intended to assist the student in applying his research to modern educational programmes and institutions. They will be closely related to the development of education in modern society.

GRADUATE DIPLOMA IN SCHOOL SUPERVISION

This Diploma is offered for those who wish to qualify for administrative or supervisory positions in the educational system but do not wish to submit the thesis required for the Master of Arts degree.

The entrance requirements and admission procedures are the same as those for the M.A. degree (above), save that candidates must have had at least one year of teaching experience. The fee is $275.

The programme of the course is the same as that for the M.A. degree (above), save that in the Winter Session the weekly seminars will be replaced by a seminar on case studies in administration, and directed study. The course may, as above, be completed in a minimum of fifteen months.

DEPARTMENT OF ELECTRICAL ENGINEERING

57/58

Professors	———, *Chairman*
	F. S. HOWES
Associate Professor	W. H. SCHIPPEL
Assistant Professors	G. W. FARNELL
	T. J. F. PAVLASEK

Advanced courses of instruction and laboratory facilities are available for graduate students desiring to proceed to the Master of Engineering degree in either Electric Power or Electrical Communication Engineering, or to the Ph.D. degree in Electrical Communication Engineering.

The undergraduate Communication Engineering option, as given at McGill, involves, in addition to the regular courses in electric power engineering, 48 hours of lectures and 36 hours of laboratory in electron tubes and circuits; 48 hours of lectures in telephone transmission, radio-frequency lines, and wave guides; 48 hours of lectures and 144 hours of laboratory in radio engineering; 24 hours of lectures in applied acoustics; and 12 hours of lectures and 36 hours problems in radio design. Candidates for the M.Eng. degree in Communication Engineering, who come to McGill from other institutions, are expected to have had the equivalent background of training. Candidates without this preparation, who are otherwise qualified, may make up their deficiency in a qualifying year.

I. ELECTRIC POWER ENGINEERING

Courses

G401. POWER SYSTEM STABILITY — *Professor Schippel*

G402. ELECTRIC MACHINE DESIGN — *Professor Schippel*

G403. INDUSTRIAL ELECTRONICS AND CONTROL — *Professor Pavlasek*

G406. ELECTRICAL POWER TRANSMISSION AND DISTRIBUTION — *Professor Schippel*

Courses G401, G402, G403, and G406 each consist of two lectures per week throughout the session, together with such reading and problems as may be assigned by the instructor.

Course Requirements

All students proceeding to the Master of Engineering degree in Electric Power Engineering are required to take course G411 or its equivalent in Applied Mathematics, together with such other courses from the above list as may be deemed necessary for progress in the special field of the student's interest and research.

Research

Facilities are available for studies in the following fields:

(a) Power System Stability.

(b) Design and Operation of Electric Power Equipment.

(c) Industrial Control, including Electronic Control Devices.

(d) Protection of Electric Power Systems.

(e) Electrical Measurements.

II. ELECTRICAL COMMUNICATION ENGINEERING

Courses

G411	APPLIED MATHEMATICS	*Professor P. R. Wallace (Department of Mathematics)*
G412	OPERATIONAL CALCULUS AND MATRIX ALGEBRA	*Professor E. Rosenthall (Department of Mathematics)*
G413	COMPLEX VARIABLE WITH ENGINEERING APPLICATIONS	*Professor E. Rosenthall (Department of Mathematics)*
G414	RADIATION THEORY AND ANTENNAS	*Professor J. D. Jackson (Department of Mathematics)*
G415	ENGINEERING ACOUSTICS	*Professor F. S. Howes*
G416	RADIO EQUIPMENT DESIGN	*Professor F. S. Howes*
G417	NETWORK ANALYSIS	*Professor T. J. F. Pavlasek*
G418	TRANSIENT ANALYSIS AND PULSE TECHNIQUES	*Professor G. W. Farnell*
G419	TRANSISTOR ELECTRONICS	*Professor G. W. Farnell*
G421	PRINCIPLES OF SERVOMECHANISMS	*Professor H. G. I. Watson (Department of Physics)*
G423	DIGITAL AND ANALOG COMPUTERS	*Mr. G. Glinski*
G424	GRADUATE SEMINAR	*Professors _____ and Howes*

and the following courses offered at Carleton College, Ottawa:

G425	RADIATION THEORY AND ANTENNAS	*Dr. H. Gruenberg*
G426	RADIO RECEIVER DESIGN	
G427	FEEDBACK CONTROL SYSTEMS	*Mr. N. L. Kusters*
G428	DIGITAL AND ANALOG COMPUTERS	*Mr. G. Glinski*
G429	MICROWAVE THEORY AND TECHNIQUES	*Dr. H. Gruenberg*
G430	VIBRATION AND SOUND	*Dr. G. J. Thiessen*
G431	TRANSISTOR THEORY AND APPLICATIONS	*Dr. J. H. Simpson*
G433	APPLIED MATHEMATICS	
G434	RADIO WAVE PROPAGATION	*Dr. L. H. Doherty*

Not all of these courses are offered every session.

The above courses listed under II are all given in the evening. Each involves one two-hour lecture per week. Courses G425 - G434 are given at Carleton College, Ottawa.

Course Requirement

The course requirement for the Master's degree in Electrical Communication Engineering is course G411, or its equivalent in Applied Mathematics, and any three of the other courses listed.

Participation in the Graduate Seminar (G420) may be required of all candidates for the Master's degree in Communication Engineering in their final year.

Research

Facilities are available for research in the following fields:

(a) Circuits—Audio Frequency and High and Ultra-High Radio-Frequency.
(b) Micro-wave measurements.
(c) Radio noise studies.
(d) Antenna problems.
(e) Transistor electronics.
(f) Pulse-testing problems.
(g) Acoustical measurements.
(h) Acoustical noise reduction problems.

III. THESIS REQUIREMENT

In addition to the course requirement for the Master's degree, the student is required to submit a thesis based on his own research or development work in connection with some suitable problem in the broad fields of Electric Power or Communication Engineering. The subject of the thesis must be approved by the Department of Electrical Engineering at the beginning of the year in which it is to be submitted.

IV. GRADUATE EVENING COURSES IN ELECTRICAL ENGINEERING

Graduate engineers engaged in research, design, and development work in the fields of Power and Communication Engineering require more advanced training in mathematics, field theory, and circuit theory than can be included in undergraduate courses. In addition, there are many special phases of Communication Engineering which require, for their mastery, such advanced training.

In order to meet this need many of the graduate courses are given in the evening, but some of them are offered only in alternate years.

All of the courses listed under II above are given in the evening and are available to graduates employed in industry. Students so employed during the day are permitted to take not more than two courses per session.

In the field of Communication Engineering, graduate evening courses are also given in Ottawa by special lecturers attached to the staff of McGill University.

It is now generally recognized that these courses provide a necessary supplement to undergraduate training in communications and, in addition, provide the opportunity for graduates to complete the course requirement for the Master of Engineering degree while gainfully employed.

Registration

Evening students who wish to proceed to the Master's degree are not permitted to register with the Faculty of Graduate Studies and Research until they have completed the four required courses with an average mark of not less than 75 per cent. They may then make application to the Department of Electrical Engineering for acceptance as graduate students in that department, and if they are accepted, they may proceed with registration in the Faculty of Graduate Studies and Research.

Thesis

The general requirements for the thesis are those shown under Section III. Under certain circumstances, an evening course student may be permitted to base his thesis on research done in an industrial laboratory.

Residence Requirement

At least one full session of resident study at McGill University is required of a candidate for a Master's degree. Evening students who attend classes at McGill may be exempted from the residence requirement when they have completed the course requirement. Students who take their course work in Ottawa are required to spend a session at McGill which may be largely devoted to research and thesis preparation. Candidates for the Master's degree who are graduates of McGill and who are Civil Service employees of two or more years standing may have their residence requirement reduced to a half session only. (See page 2622.)

Fees

Fees paid by an evening course student for courses which he successfully completes will be credited toward the general graduate fee should he subsequently be accepted as a graduate student in the Department of Electrical Engineering.

M.Sc. in Electrical Communications

To enable graduates in Physics to complete the course requirement for a Master's degree through evening study, the M.Sc. in Electrical Communications is being offered by the Department of Electrical Engineering. The requirements regarding courses, registration, thesis, residence and fees are the same as for the M.Eng. degree detailed above.

Graduate Diploma

A graduate diploma is available in Electrical Communications, Electrical Communication Engineering and Electric Power Engineering. The course and registration requirements are the same as for the M.Eng. degree but there is no residence or thesis requirement. Students who have already completed the course requirement and who wish to proceed to the Graduate Diploma rather than the Master's degree, should make application to the Department before January 31st for acceptance as graduate students in that department. Such application should be accompanied by a transcript of the student's undergraduate record and by a letter indicating the graduate evening courses taken by the student and the years in which they were taken. The fee for registration and graduation is $25.

V. REQUIREMENTS FOR THE PH.D. DEGREE IN ELECTRICAL ENGINEERING

This degree is at present available only in the field of Communication Engineering.

(1) All the general regulations of the Faculty of Graduate Studies and Research for the degree of Ph.D. will apply.

(2) Candidates for the degree of Ph.D. in Electrical Engineering will be accepted only after they have obtained the M.Eng. degree in Electrical Engineering at McGill University or its equivalent from another institution, and their acceptance will depend on the standing obtained with the M.Eng. degree.

(3) A minimum of four courses of graduate level must be completed beyond the Master's degree. Of these one must be in advanced mathematics, one in physics, one in an engineering subject, and the fourth may be in any of these three fields or in some other field particularly relevant to the thesis topic of the student.

All four courses are to be chosen, in consultation with staff members to augment most appropriately the previous work of the student.

The courses must be completed at least 12 months before the date on which the degree is obtained.

When it is planned to spread the Ph.D. programme over more than two years beyond the Master's degree, at least one course should be taken in each year except the final one.

(4) A general written examination covering the field of electronics and communication engineering will be held not less than 12 months prior to the expected date of graduation.

(5) After the acceptance of the thesis an oral examination covering its contents and related material will be held.

(6) Students registering for the Master's degree who have any thought of possibly proceeding to the Ph.D. degree are advised, particularly if their Master's degree work covers more than one academic session, to attempt at least one of the Ph.D. language examinations before registering for the Ph.D. degree. They may also be permitted, subject to departmental approval, to take one or two of the additional courses required for the Ph.D. degree, in the second or later years of their Master's degree work.

DEPARTMENT OF ENGLISH

Professors	Ralph S. Walker, *Chairman* H. G. Files Joyce Hemlow
Associate Professor	Hugh MacLennan
Assistant Professors	Constance Beresford-Howe Louis Dudek Archibald Malloch
Lecturers	Curtis D. Cecil Alexander M. Kinghorn Slava Klima Frank S. MacShane Gordon F. Sleigh

UNDERGRADUATE PREREQUISITES

Applicants for admission to the Faculty as candidates for the M.A. degree, in addition to holding the B.A. degree, must normally have obtained first or second class Honours in English at McGill University, or the equivalent elsewhere. An undergraduate candidate for Honours in English at McGill must take, in the 2nd, 3rd, and 4th years, a total of ten courses, including Half Courses 305a or 305b (Chaucer) and 315b (16th century), and Courses 200 (Shakespeare), 320 (17th century), 220 (18th century), 230, for which 322A and 322B may be substituted, (19th century), and 340 (20th century). The remaining four courses are chosen from those approved by the Department as Honours courses or Cognate courses.

Applicants for admission who in the opinion of the Department lack the equivalent of this training may be permitted by the Dean and the Department to take a qualifying year, provided that it is possible for them to make up the required qualifications by taking not more than five Honours courses in this qualifying year. For particulars of the prerequisite courses, see the Announcement of the Faculty of Arts and Science.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

Candidates for the degree of M.A. in English must take three courses (two half courses counting as one full course) from the list given below, and in addition the Half Course in Bibliography (500a), if the undergraduate Half Course in Bibliography (380a), or its equivalent, has not already been passed. The Course in Old English (504) must be included as one of the three required courses, if the undergraduate Course in Old English (300), or its equivalent, has not already been passed. A thesis on some subject approved by the Department must be written under the supervision of a Director appointed by the Department. Suitably qualified candidates may obtain permission to substitute a project in creative writing, such as a novel, for the thesis. Every student, after presenting his thesis, must be prepared, if so required by the Department, to submit to an examination, oral or written on its subject matter or background.

Students registered for courses or half courses listed below will meet their instructors twice or three times a week at the instructors' direction. As all the courses and half courses may not be available every year, it will be necessary for every M.A. degree candidate to consult the Department before making his choice from among them.

COURSES FOR GRADUATES

500a. BIBLIOGRAPHY (Half course). An introduction to the apparatus and methods of scholarship in literary studies.

First term. *Professor Malloch*

502. LITERARY CRITICISM (Full course). The nature of literature and literary criticism; the great critics and the critical thought of the West from the beginnings in Greek criticism (with special emphasis on Plato, Aristotle, and Longinus) through the Renaissance to the present time.

Professor Files

504. OLD ENGLISH (Full course). English Language and Literature up to the Norman Conquest. The course includes readings from Anglo-Saxon prose in the first term, and, in the second, a study of heroic poetry. The texts used are: Bright, *Anglo-Saxon Reader* and *Beowulf* (ed. Klaeber).

Professor Hemlow

506a. THE ARTHURIAN LEGEND (Half course). A study of *Gawain and the Green Knight* (ed. Tolkien and Gordon) and of its relationship to the rest of the Matter of Britain. Writers such as Geoffrey of Monmouth, Chrestien de Troyes, and Marie de France are studied in translation.

First term. *Professor Hemlow*

508b. CHAUCER (Half course). A study of the *Romaunt of the Rose*, the dream-vision poems, and *Troilus and Criseyde*, with a historical survey of the development and variations of the Troilus story.

Second term. *Professor Hemlow*

510b. THE SCOTTISH CHAUCERIANS (Half course). A study of the Scottish poetry of the 15th and 16th centuries, with particular attention to the work of James 1, Henryson, and Dunbar and the influence which affected it.

Second term. *Dr. Kinghorn*

512a. MARLOWE (Half course). A study of Marlowe's work in relation to the work of Peele, Greene, and Kyd, and of its possible influence on Shakespeare; with particular attention to *Dr. Faustus* and the critical problems connected with it.

First term. *Professor Walker*

514a. SPENSER (Half course). The Renaissance theory of poetry and a study of *The Faerie Queene* in relation to its historical, philosophical, social, and literary backgrounds; with supplementary reading illustrative of the literary and intellectual climate of the Renaissance.

First term. *Professor Hemlow*

516b. SHAKESPEARE (Half course). A study of *Hamlet*, its principal sources and main textual and interpretative problems; with prescribed reading from critical literature dealing with various aspects of the play.

Second term. *Professor Walker*

518b. BEN JONSON (Half course). A study of Jonson's work as a whole, dramatic, lyrical, and critical, with prescribed reading from the plays, poems, and masques, the *Discoveries* and *Conversations*, and from relevant critical literature.

Second term. *Professor Walker*

522b. MILTON (Half course). A study of *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*, and of the bearing of the earlier works on these major poems, with prescribed reading from the critical literature.

Second term. *Professor Malloch*

524a. THE COMEDY OF MANNERS (Half course). Representative plays by Etherege, Wycherley, Congreve, and Farquhar, with a detailed study of *The Man of Mode*, *The Country Wife* and *The Way of the World*.

First term. *Mr. C. D. Cecil*

526a. POPE AND SWIFT (Half course). A study of the satirical writings of Pope and Swift, with reference to the thought and literary traditions of the Augustan age.

First term. *Dr. Klima*

528a. JOHNSON AND HIS CIRCLE (Half course). A study of the principal works of Dr. Johnson and of the literary and critical climate of his age, as revealed in the writings of Garrick, Reynolds, Burke, Boswell, the Burneys, and Mrs. Thrale.

Second term. *Professor Hemlow*

530a. WORDSWORTH AND COLERIDGE (Half course). A study of *The Prelude* and *The Excursion* and of their relationship both to Wordsworth's earlier poetry and to Coleridge's poetical theory and practice.

First term.

532b. BROWNING (Half course). A selective study of the principal works, of the distinctive characteristics of Browning's art, and of the religious and intellectual tendencies reflected in his writing.

Second term.

534a. HAWTHORNE, MELVILLE AND JAMES (Half course). A comparative study in the growth of an American tradition of novel-writing and in the development of its technical resources.

First term.

540. CROSS-CURRENTS BETWEEN ENGLISH LITERATURE AND THE EUROPEAN LITERATURES IN THE 18TH CENTURY (Full course). The influence of continental literature and criticism on the English neo-classicism of the 18th century and the influence of English literature and criticism on European writers from the time of Voltaire to the rise of Byronism. Reference is made to the works of French, German, and Italian writers. A reading knowledge of French is a prerequisite.

Dr. Klima

DEPARTMENT OF ENTOMOLOGY

(Macdonald College)

Professor	_____ *Chairman*
Associate Professor	F. O. MORRISON
Assistant Professors	R. G. BIGELOW
	J. E. MCFARLANE
	W. E. WHITEHEAD

Adequate laboratory and library facilities are available for the courses listed below and for research. Students are also recommended to take courses offered by the Department of Zoology either as part of their major work or as a cognate subject.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

60. INSECT MORPHOLOGY

(a) General Morphology.
1 colloquium and 4 laboratory hours.
Professors _____ *and Bigelow*

(b) Embryology and Metamorphosis.
2 lectures. *Professor* _____

61. TAXONOMY. Each student must bring to the class a collection of the group of insects on which he desires to work, and may devote the greater portion of his time to a study of this group.
2 lectures and 4 laboratory hours *Professor Bigelow*

62. INSECT PHYSIOLOGY
2 lectures and 4 laboratory hours. *Professor McFarlane*

63.* ECOLOGY
2 lectures, first term. *Professor* _____

64. ECONOMIC ENTOMOLOGY
(a) Principles of Insect Control
2 lectures supplemented by colloquia. *Professor Morrison*

(b) Problems of Insect Control. *Professor Morrison*

65. MEDICAL AND VETERINARY ENTOMOLOGY
2 lectures, 3 laboratory hours per week for 1 term. A more extensive course may be arranged for students interested primarily in this subject.
Professor _____

67. SEMINAR
One and one-half hours weekly. *Professor* _____ *and Staff*

68. BIBLIOGRAPHY OF ENTOMOLOGY
Weekly lecture and discussion, first term. *Professor* _____

* This course is also open to advanced undergraduates.

M.Sc. REQUIREMENTS

Candidates for admission must have had (1) satisfactory undergraduate training in mathematics, physics, chemistry, and biology; and (2) at least second class standing in the undergraduate courses in entomology given at Macdonald College or their equivalent.

For students who satisfy these conditions the minimum period of study is one year, for others two years, one of which is a qualifying year.

In addition to writing a thesis, the student will take such courses as are decided upon in consultation with the chairman of the department and his director of research. All students are required to take an active part in the seminar.

Ph.D. REQUIREMENTS

Students who have taken a high standing in the M.Sc. in Entomology at McGill University or its equivalent, may proceed to the Ph.D. degree in two additional years. Qualified students holding a B.Sc. degree may register directly for the Ph.D., but before being allowed to enter the Second year such students must pass a searching oral examination to determine their fitness to proceed.

It is strongly recommended, and may be required, that the Ph.D. candidate should spend one of the three years of full-time study at an approved university, or research institution, other than McGill.

The student is also required to spend the equivalent of two summer seasons in research work at a government laboratory or other approved research institution.

Research facilities are available within the fields covered by the courses listed. Candidates with special problems should consult the Chairman of the department before making formal application.

57/58

DEPARTMENT OF EXPERIMENTAL MEDICINE

Professors	RONALD V. CHRISTIE, *Chairman*
	E. S. MILLS
Associate Professors	E. H. BENSLEY
	D. G. CAMERON
	M. M. HOFFMAN
	BRAM ROSE
	ELEANOR H. VENNING
Assistant Professors	JOHN C. BECK
	L. G. JOHNSON
	K. R. MACKENZIE
	A. SEHON
Lecturer	W. S. BAULD

COURSES FOR THE DEGREE OF M.Sc. or Ph.D.

61. SEMINAR. 1 hour weekly throughout the session (to be registered for as Investigative Medicine 61).

62. ADVANCED ENDOCRINOLOGY (to be registered for as Biochemistry 62). 2 hours weekly throughout the session.

63. ADVANCED ENDOCRINOLOGY (to be registered for as Biochemistry 63). 2 hours weekly throughout the session.

Courses 62 and 63 are given in alternate years.

Course 63 will be given in 1957-58.

64. CLINICAL ENDOCRINOLOGY (to be registered for as Investigative Medicine 64). 1 hour weekly throughout the session.

65. PHYSIOPATHOLOGY. 1 hour weekly throughout the session.

66. PRINCIPLES AND METHODS OF CLINICAL INVESTIGATION (to be registered for as Investigative Medicine 66).

67. NEWER LABORATORY METHODS (to be registered for as Investigative Medicine 67). 2 hours weekly half session.

GENERAL STATEMENT

The Department offers courses leading to the degrees of M.Sc. and Ph.D. in the Faculty of Graduate Studies and Research and provides research facilities for these students or for other persons proceeding to graduate degrees, diplomas or for other qualified individuals.

The courses and the direction of research in this department are given in close collaboration with the Department of Investigative Medicine and members of either department give lectures and direct the research of graduate students registered in the other.

Students may work either in the University Clinic Montreal General Hospital, University Clinic Royal Victoria Hospital or in the Department of Investigative Medicine depending on the type of work done (clinical or laboratory) or upon the individual directing the research.

Students holding either the M.D. or the B.Sc. degree or its equivalent may enter the department provided that their standing is acceptable.

57/58

DEPARTMENT OF EXPERIMENTAL SURGERY

Professors P. G. ROWE, *Chairman*
D. R. WEBSTER

The Experimental Surgical Laboratories provide facilities for graduate research.

MASTER OF SCIENCE

A. *Prerequisites*—A candidate for the degree of Master of Science in Surgery must possess an M.D. degree together with a better than average academic record. His previous interest and experience in investigative work is taken into consideration in the selection of such a candidate.

B. *Requirements*—The major part of the student's time shall be devoted to research in some special field of investigative work. A thesis covering this subject, judged chiefly upon its original quality, shall be the prime requisite for his degree.

In addition, the student shall be required to attend certain courses of graduate instruction in the basic sciences which will be chosen, when possible, in association with his individual research problem. His work in these courses must satisfy the instructors concerned, by whatever form of examination may be deemed necessary by them.

For the purpose of supervising and directing the student's research. conferences are held frequently within the department. Such technical assistance as may not be available locally is sought elsewhere for the benefit of the student.

DEPARTMENT OF FRENCH

Professor	J. E. L. Launay, *Chairman*
Associate Professor	Mme. P. L. Larivière
Assistant Professors	Mlle. Yvonne Champigneul
	Louis d'Hauteserve
	Mlle. M. Th. Reverchon
	André A. Rigault

COURSES FOR THE DEGREE OF MASTER OF ARTS

60. LA FONTAINE
1 hour. *Professor Champigneul*

61. LA CRITIQUE LITTÉRAIRE (Histoire et Méthodes)
2 hours. *Professor Launay*

62. PASCAL
1 hour. *Professor Larivière*

63. EXERCICES PRATIQUES (Colloquia)
1 hour. *Staff*

64. LA POÉSIE SYMBOLISTE
1 hour. *Professor Reverchon*

65. COURS DE TRADUCTION AVANCÉE
2 hours. *Professor Launay*

*42. LA LITTÉRATURE ET LES IDÉES SOCIALES AU 19e SIÈCLE
3 hours. *Professor d'Hauteserve*
(*Given in 1958-59.*)

*44a. HISTOIRE DE LA LANGUE FRANÇAISE
1 hour. *Professor d'Hauteserve*

*44b. FRENCH STYLISTICS
2 hours. *Professor Launay*

*45. HISTOIRE DU ROMAN EN FRANCE
3 hours. *Professor Launay*
(*Given in 1958-59.*)

*46. HISTOIRE DE LA POÉSIE LYRIQUE EN FRANCE
3 hours. *Professor Larivière*

*47. LA LITTÉRATURE FRANÇAISE CONTEMPORAINE
3 hours. *Professor Larivière*
(*Given in 1958-59.*)

*48. ADVANCED PHONETICS
2 hours. *Professor Rigault*

Candidates for the Master's degree in French will take courses 60, 61, 62, 64, 65, and one course in the Department of English selected in consultation with the Chairman of the French Department.

The M.A. thesis must be written in French.

Students cannot normally obtain an M.A. in less than two years (one year for prerequisite courses, one year for research and writing of thesis). Students from other Provinces and States where the opportunities of speaking French are small may be required to take a Qualifying Year of studies before they are accepted by the Faculty as Graduate Students. During this Qualifying Year students are required to take at least two full undergraduate honours courses (which they must pass with second-class standing) and such other subsidiary courses (phonetics and translation) as the Department may direct. In certain cases students accepted for the Qualifying Year only may be advanced to full graduate standing at the end of the first term of the winter session if they have shown sufficient promise and ability in their first three months of work.

*These are also Honours Courses in the Faculty of Arts and Science.

Students from other universities applying for admission to the Graduate Faculty as French specialists must hold a B.A. degree with at least good second-class standing in French, or the equivalent. This must include an ability to speak French fluently, and a sound knowledge of French literature from 1600 to 1940. Whenever possible an interview will be arranged prior to admission to graduate standing.

REGULATIONS FOR THE MASTER OF ARTS DEGREE TAKEN IN THE FRENCH SUMMER SCHOOL

1. All work carried on towards an M.A. degree in the French Summer School is under the control and supervision of the Department of French in the Faculty of Graduate Studies of the University.

2. Requirements for the Master's degree:

(a) The student must hold the degree of B.A. from McGill University or from another institution of recognized standing, with at least second class honours in French, or the equivalent of second class honours in French as granted by McGill University—which must include an ability to speak French fluently, and a sound knowledge of French literature from 1600 to 1940.

(b) A student qualified as in 2 (a), must complete four sessions in the Advanced Section of the French Summer School with at least second class standing in the final examinations of each session.

(c) The student must prepare and present a thesis, written in French, which must be in some measure a contribution to knowledge. Its preparation is carried out under the direction of the French Department.

3. Students applying for admission to the Advanced Section of the Summer School, with the intention of proceeding towards the M.A. degree, should, as soon as possible, have a transcript of their academic record sent for appraisal to the Director of the School.

Students whose record is considered the equivalent of the B.A. degree with at least second class honours in French as granted by McGill University will be notified of their eligibility for future admission to the Faculty of Graduate Studies of the University. *At the end of their second session they will apply for admission to the Faculty as candidates for the M.A. degree, provided they have completed the course requirements for the first two sessions, but they will not register in the Graduate Faculty until the end of the fourth session; they must then register with the Dean as non-resident students, pending completion of the required thesis.* (See also Section 18 of the General Faculty regulations, page 2618.)

Students who hold a B.A. degree but whose record is not considered the equivalent of the McGill B.A. with at least second class honours in French, may be allowed to make up the deficiency by taking more courses during their third and fourth summer sessions. They will also be admitted to the Graduate Faculty at the end of the second summer session, provided that they have obtained at least a high second class standing in the courses of the first two summer sessions.

4. In the case of students of honours standing, the first summer session consists of five courses, the second of four courses, the third of three courses, and the fourth of two courses, each course consisting of three lectures per week. The decreasing number of courses through the four sessions enables the student to devote more time to the preparation of his thesis, which must begin in the third session at latest. Each student works under the guidance of a director of research who is a member of the French Summer School staff. The only listed course which may be taken for credit in more than one session is No. 31 Advanced Composition (see below).

Students may be required to take certain courses which are changed from year to year, and in any case:

30(a) and 30(b). FRENCH STYLISTICS. Students are advised to take this course during their second and third sessions.

31. ADVANCED COMPOSITION. A minimum mark of 65% must be obtained in the final examination of this course, irrespective of the final average for the set of courses taken during the session. The course must be repeated until this requirement has been met. As its material is varied each year, it can be taken a second summer for credit. If taken more than twice, it must then be carried as an extra course.

5. With the approval of the Graduate Faculty, one of the summer sessions, except the first, may be replaced by equivalent work in France or at another French Summer School.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates for this degree will not be accepted until further notice.

DEPARTMENT OF GENETICS

In Montreal

Professor	J. W. BOYES, *Chairman*
Associate Professor	F. C. FRASER
Assistant Professors	E. R. BOOTHROYD
	G. I. PAUL

Assistant Professor and Research Fellow	J. D. METRAKOS
Research Fellow	S. F. FYLES

At Macdonald College

Assistant Professors	G. E. BRADFORD
	R. I. BRAWN
	W. F. GRANT
Research Associate	BRONYS POVILAITIS

Students in the following categories will normally be accepted for graduate studies in this Department:

1. Honours graduates in either Botany or Zoology at McGill who have completed at least one full course in Genetics and one full course in the non-honours subject of either Botany or Zoology.

2. Graduates of McGill who have taken a continuation in Genetics plus a minimum of two full courses in each of Zoology and Botany, who have an average standing of over 65%.

3. Students from other Universities or Agricultural Colleges who have records approximately equivalent to those of any of the above categories.

4. Students who have completed the General Honours Course in Biological Subjects with standing acceptable to this Department.

5. Students who have completed the Honours Course in Genetics.

Other students who have fulfilled part of the above requirements or have a sound knowledge of General Biology plus other special qualifications will normally be required to spend a qualifying session on an approved programme of studies.

The Department will welcome students from other fields of Biological Science or from Agricultural Institutions who are interested in familiarizing themselves with the significance of hereditary variables in their particular fields of interest.

With the co-operation of the Department of Botany and the Faculty of Agriculture adequate laboratory, greenhouse, field, and library facilities are available for research in Plant or Animal Genetics and Cytology. With the cooperation of the Department of Pediatrics and the Montreal Children's Hospital, facilities are provided for training in Human Genetics.

COURSES FOR HIGHER DEGREES

32a. CYTOLOGY (Half course)
First term: 2 hours and a 3-hour laboratory period. *Professor Boothroyd*

36b. DEVELOPMENTAL GENETICS (Half course)
Second term: 3 hours. *Professor Fraser*

42b. MICROBIAL GENETICS (Half course). An analysis of recent progress in the genetics of microorganisms such as viruses, bacteria, yeasts, paramecia, algae, fungi, etc.
Second term: 3 hours. *Professor Grant*
(*Not given in 1957-58.*)

43b. ADVANCED CYTOGENETICS (Half course)
Second term: 3 hours. *Professors Grant and Boothroyd*

44. BIOMETRY (Full course). Applications of statistics to research problems in biology.
2 hours lectures and 3 hours of computation. *Professor Paul*

45a. GENETIC INTERPRETATION OF THE MECHANICS OF EVOLUTION (Half course)
First term: 3 hours. *Professor Boyes*
(*Not given in 1957-58.*)

45b. POPULATION GENETICS (Half course). The rules governing the establishment of genetic equilibrium and the application of these rules to the study of evolution. Emphasis on human genetic studies.
Second term: 3 hours. *Professor Paul*
(*Not given in 1957-58.*)

46a. THE GENETICS OF MAN (Half course). Principles of heredity and special techniques as applied to the study of man's genetic diversity will be considered at an advanced level.
First term: 3 hours. *Dr. Metrakos*

48a. DESIGN OF EXPERIMENTS (Half course). General principles of experimentation, and designs appropriate to a wide variety of problems. Completely randomized, randomized blocks and Latin square designs: their purposes, design and analysis. Factorial experimentation, interaction, confounding, randomization and error terms. Complex experiments and an elementary treatment of incomplete block designs. Concomitant measurements, sensitivity and control of error variation. Examples drawn from biology.
First term: 2 hours and 3 hours laboratory (arranged). *Professor Paul*
Prerequisite: Genetics 44 or the equivalent.
Text: Fisher: The Design of Experiments (Oliver and Boyd).

51. SEMINAR. Weekly reports by students and staff on current researches in Cytology and Genetics.

Courses in other Biological Sciences at McGill and courses in Plant Breeding or Animal Breeding at Macdonald College may be required when it is desirable to extend the student's general background or experience for a particular problem.

COURSES GIVEN AT MACDONALD COLLEGE

62a. CYTOLOGY (Half course). The protoplasmic organization of the cell.

2 lects., 1 lab., per wk., 1st term. *Professor Grant*

Prerequisite: Genetics 30 and 300.

62b. CYTOGENETICS (Half course). Considerations of genetical and cytological problems in self-incompatibility, linkage, polyploidy, interspecific and intergeneric hybridization, nullisomics, monosomics, etc.

3 lects. per wk., 2nd term. *Professor Grant*

Prerequisite: Genetics 30, 300 and 62a.

64b. STATISTICAL METHODS IN GENETICS (Half course). A presentation and discussion of statistical methods of analysing genetic changes in populations of domestic animals and plants, with particular reference to pedigrees, heterosis, selection, etc.

3 lects. per wk., 2nd term. *Professor Paul*

Prerequisite: Genetics 30 and 300.

(*Not given in 1957-58.*)

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

Course 51 and four other courses from the above are required for the Master's degree in addition to a thesis on a research problem.

A sound knowledge of General Biology is prerequisite.

The research problem may be in Genetics, Cytology or Cytogenetics.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Only candidates who have shown indications of distinct research ability will be permitted to register for the Ph.D degree. Course 51 must be taken in each year. See general regulations for further requirements.

DEPARTMENT OF GEOGRAPHY

Professor	F. K. HARE, *Chairman*
Associate Professors	J. B. BIRD
	B. ZABORSKI
Assistant Professors	R. N. DRUMMOND
	T. L. HILLS
	J. L. IVES
	G. C. MERRILL
	W. F. SUMMERS
Research Associate, Arctic Meteorology Research Group	S. ORVIG
Honorary Lecturer	G. JACOBSEN

The Geography Department offers the degrees of M.A., M.Sc. and Ph.D. in Geography, and (in special circumstances) the M.Sc. and Ph.D. degrees for work in Meteorology.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

The following candidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.A. of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography at McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good the deficiencies in undergraduate training in that session, or at the Geography Summer School. These candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may, in certain circumstances, register for the M.A. degree in Geography, but will in general be required to register for a qualifying year, and will not be able to submit their theses until the end of the second resident year.

Candidates must

(1) pass written (and in some cases oral) examinations in two of the graduate courses listed below;

(2) attend such courses in Geography or cognate subjects as the Chairman and the student's director of research think fit;

(3) submit a thesis in the fields of Human Geography, or in those parts of Geography having a significant bearing on settlement, including planning;

(4) comply with the general field-work requirement (see below). The quality of the thesis will determine the final standing of the student.

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

The following candidates will be eligible to proceed to the degree after one resident session at McGill:

(1) students holding the Honours B.Sc. of McGill University in Geography;

(2) students from other universities having Bachelor's degrees with a comparable specialization in Geography, together with the important cognate subjects.

Other candidates with degrees in Geography from McGill and other universities may proceed to the degree after one resident session, if, in the opinion of the Chairman, they can make good the deficiences in undergraduate training in that session, or at the Geography Summer School. These candidates will not, however, be eligible to submit their theses for the May Convocation in that session.

Students with primary undergraduate specialization in a cognate field may, in certain circumstances, register for the M.Sc. degree in Geography, but will in general be required to register for a qualifying year, and will not be able to submit their theses until the end of the second resident year.

Candidates must

(1) pass written examinations in two of the graduate courses listed below:

(2) attend such courses in Geography or cognate subjects as the Chairman and the student's director of research think fit;

(3) submit a thesis in the fields of Physical Geography, or Cartography;

(4) comply with the general field-work requirement (see below).

The quality of the thesis will determine the final standing of the student.

THE MASTER OF SCIENCE DEGREE IN METEOROLOGY

A limited number of students who have adequate training in Mathematics and Physics, and who have access to facilities for research in Meteorology, may be accepted as candidates for the Master of Science degree in that subject.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Students who have attained high standing in the Master's degrees in Geography at McGill University, or have equivalent qualifications, may be permitted to proceed to the Ph.D. in two further years. In certain circumstances a student may be allowed to register for the Ph.D. without having first taken the Master's degree. Students are advised that in field subjects at least two summers of field work will normally be required.

Except in special circumstances the Department will restrict admission to the Ph.D. course to students prepared to work in one or other of the following fields: the physical and regional geography of North America; Europe and the Arctic; historical geography and the history of geographical discovery of North America; climatology and meteorology; glaciology; certain aspects of tropical geography.

A broad familiarity with the entire field of geography will be assumed in all students who register for the Ph.D. In their preliminary examinations, they must show professional competence, and will be judged as to their familiarity with the literature, methods, and organization of modern geography.

Candidates must

(1) remedy any deficiencies in their formal course-work in Geography to the Master's level, and must also ensure that they have adequate training in the important cognate subjects;

(2) submit themselves for written (and in some cases oral) examinations in five broad fields. These *preliminary examinations* must be chosen as follows: two (known as Geography 71 and 72) from physcial geography, advanced physiography, advanced climatology, and cartography; two (known as Geography 73 and 74) from human geography, economic geography, political geography, historical geography, history of geographical thought and regional theory; one (known as Geography 75) on a major region of the earth (viz., North America, Europe, etc.);

(3) submit a thesis in one of the fields listed above; and

(4) comply with the general field-work requirement (see below).

To comply with requirements (1) and (2) above, the candidate may take any of the graduate or undergraduate courses offered by the Department.

THE DOCTOR OF PHILOSOPHY DEGREE IN METEOROLOGY

In special cases, students who possess adequate qualifications in meteorology may register for the Ph.D. in that subject. Such students will normally carry out their work in the Departments of Physics or

Geography. The ordinary requirements of the Ph.D. degree will apply. Enquiries concerning this degree should be addressed to the Chairman of the Geography Department.

GRADUATE COURSES OR SEMINARS

(all courses one meeting weekly)

60 and 61. Special graduate courses given at Knob Lake Research Station.

Professor Ives

62. HISTORICAL GEOGRAPHY OF A SELECTED AREA IN NORTH AMERICA

The nature of historical geography and its development in recent years. The principles of historical geography are applied to a study of cultural landscape evolution in a restricted area of eastern Canada or United States.

Professor Bird

63a. CLIMATIC CHANGE WITH SPECIAL REFERENCE TO THE POSTGLACIAL EPOCH (Half course).

The concept of normal climate. The Pleistocene aberrations; glacial and pluvial climates and the interglacials. Post-glacial sequences in North America and Europe; the thermal maximum. The recent climatic fluctuations. Causes of climatic change.

First term. *Professor Hare*

63b. PHYSICAL CLIMATOLOGY (Half course).

The energy and moisture balance of the atmosphere with particular reference to the layers very close to the ground.

Second term. *Dr. Orvig*

64. DYNAMIC CLIMATOLOGY WITH SPECIAL REFERENCE TO THE POLAR CLIMATES.

Dynamic climatology as the empirical study of the general atmospheric circulation. Regional circulation over polar regions. Techniques of analysis.

Professor Hare

65. THE PHYSICAL GEOGRAPHY OF A SELECT AREA OF NORTH AMERICA

An analysis of the evolution of the physical landscape of a small area in North America. The course makes considerable use of topographic maps and air photographs and requires the student to apply physiographic theory to actual areas.

Professor Bird

66. CARTOGRAPHY, WITH PARTICULAR REFERENCE TO SPECIAL PURPOSE MAPS

Survey of modern topographical maps of leading countries. Study of features and phenomena of physical and human geography on topographical maps of several countries. Comparison and appreciation of maps.

Professor Zaborski

67. THE GEOGRAPHY OF THE ARCTIC

A study of Northern Lands with particular reference to Arctic Canada. Equal time will be devoted to the physical evolution and special characteristics of northern areas; and to the human response to the environment and recent economic development.

Professor Bird

68. REGIONAL GEOGRAPHY OF A SELECTED AREA

An advanced course designed to illustrate the processes of regional study.

The Staff

69. METHODS OF GEOGRAPHICAL RESEARCH

A review by the staff of the accepted methods of research in geographical problems, in both physical and human fields. Emphasis will be laid upon inadequacies in the existing methodology. The approach will be practical, and will require the presentation of formal research papers for criticism and discussion.

The Staff

71-75. PH.D. PRELIMINARIES (see above).

FIELD WORK REQUIREMENT

The Geography Department normally holds either an annual field trip immediately before the beginning of the session, to an area of geographical interest in either Eastern Canada or the Northeastern United States, or a series of local field excursions during the fall term. All students in residence will participate in these field studies.

McGILL SUBARCTIC RESEARCH LABORATORY

This laboratory (under the resident direction of Professor J. D. Ives) is at Knob Lake (Schefferville), in the heart of Labrador-Ungava. Facilities exist for research in most aspects of physical geography, and there is a resident staff of five research assistants. Extensive summer field programmes are arranged. Two graduate courses (Geography 60 and 61) are offered. All enquiries should be addressed to the Chairman, Geography Department.

DEPARTMENT OF GEOLOGICAL SCIENCES

Professors	T. H. Clark, *Chairman*
	J. E. Gill
	E. H. Kranck
Associate Professors	J. E. Riddell
	J. E. Stevenson
Assistant Professors	J. A. Elson
	V. A. Saull
	C. W. Stearn
Research Associates	M. J. Rickard
	G. R. Webber

GENERAL STATEMENT

Entrance to graduate work in Geological Sciences may be through the course in Mining Engineering (B.Eng. with good second class standing) or through the honours course in Geological Sciences (B.Sc., honours Geology).

Students who have not passed courses in Surveying, Calculus, Electricity and Magnetism (or Advanced General Physics), Geophysics, Physical Chemistry, and Chemical Analysis must do so before being eligible for an advanced degree. They must also present evidence of having done satisfactory field work under competent direction for at least one summer.

REQUIREMENTS FOR THE DEGREES OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

Candidates for the degree of Master of Science who have not satisfactorily completed courses equivalent to the undergraduate courses listed below must make up any deficiency and, in addition, take graduate courses A, B, E, and one other as advised. The thesis must conform to the general regulations. (For the degree of M.Sc.(Applied) see below on page 2694.)

Courses for the Degree of Doctor of Philosophy will be selected from the list of graduate courses according to the student's particular interest, on the advice of his director of research. The thesis must conform to the general regulations.

UNDERGRADUATE COURSES

231c. FIELD GEOLOGY (Fac. Eng. 1165). Surface and underground geological field survey methods. Preparation of geological maps, sections, models, and reports from field notes, diagrams, aerial photographs, etc.

Two-week field school in May. *Professor Riddell*

Prerequisites: Geology 121, 221, Surveying 324 and 352, Mining 761.

References: Lahee, Field Geology (McGraw-Hill) 5th edition; McKinstry, Mining Geology (Prentice-Hall).

232b. STRUCTURAL GEOLOGY (Fac. Eng. 1166). A systematic survey of rock structures, their origins and practical importance. Laboratory periods will be devoted to practical problems.

Second term: 2 hours and 1 laboratory period. *Professor Riddell*

Prerequisites: Geology 121, 221.

Reference: Billings, Structural Geology (Prentice-Hall) 2nd edition.

331a. OPTICAL MINERALOGY. Topics covered in the lectures include refraction and double refraction, polarization of light, and the nature of and reason for the various optical characters exhibited by crystals. The laboratory course gives practice in the determinations of these characters, using the polarizing microscope.

First term: 2 lectures and 3 hours laboratory. *Professor Stevenson*

Prerequisites: Geology 121, 221.

References: Larsen and Berman, Microscopic Determination of Nonopaque Minerals, 1934, Bull. 848 U.S. Geol. Surv.; Wahlstrom, Optical Crystallography (Wiley, 1951); Winchell, Elements of Optical Mineralogy, Part I (Wiley, 1937).

332a. PETROLOGY (Fac. Eng. 1144). The common igneous, sedimentary, and metamorphic rocks are described and their modes of occurrence discussed. In the laboratory, the student learns to identify such rocks by methods used in the field.

First term: 2 hours and 1 laboratory period. *Professor Kranck*

Prerequisites: Geology 121, 221.

Textbook: Tyrrell, The Principles of Petrology, 1949.

333b. PETROGRAPHY (Fac. Eng. 1148). The examination and identification of rock minerals and rocks by means of the petrographic microscope.

Second term: 2 hours and 1 laboratory period. *Professor Kranck*

Prerequisite: Geology 332a.

Textbook: Rogers and Kerr, Optical Mineralogy *or* E. E. Wahlstrom, Petrographic Mineralogy, 1955; Williams, Turner, Gilbert, Petrography 1954.

341b. PALEONTOLOGY. The development of ideas concerning the origin of fossils. Kinds of fossils; collecting, preparation, and naming of fossils. Brief survey of systematic paleontology, following the standard biological classifications, with emphasis on fossil animals. The stratigraphic and economic importance of paleontology. The influence of paleontology upon the doctrine of evolution.

This course may be omitted as a requirement for some M.Sc. students.

Second term: 2 lectures and 2 hours laboratory and 1 full day's field work in April. *Professor Clark*

Prerequisite: Geology 121 or Biology 100.

342a. GEOMORPHOLOGY. A study of the surface features of the earth, their origins, changing aspects, and influence on human activities. Special attention is given to the significance of various land forms in relation to soils, bedrock, and rock structure and the distribution of natural resources. Maps and photographs provide illustrations.

First term: 2 lectures and 1 laboratory period. *Professor Elson*

Prerequisite: Geology 121.

Textbook: Thornbury, Principles of Geomorphology (Wiley).

343a. STRATIGRAPHY. The principles of sedimentation. Weathering; sources and origin of sedimentary rocks; significance of their textures and structures. The structural relationship of strata; areal distribution of sedimentary rocks. Reference is made throughout the course to matters of economic importance.

First term: 2 hours, 2 hours laboratory, and 2 full days of field work during October. *Professor Clark*

Prerequisite: Geology 121, 221.

Textbooks: Twenhofel, Principles of Sedimentation, 2nd ed., 1950; Pettijohn, Sedimentary Rocks (Harper).

344b. MINERALOGRAPHY. Identification of ore minerals in polished sections by means of the reflecting microscope; interpretation of their textural relationships and paragenesis.

This course may be omitted as a requirement for some M.Sc. students.

Second term: 2 lectures and 3 hours laboratory. *Professor Stevenson*

Prerequisites: 331a or permission of instructor.

Texts: Short, Microscopic Determination of the Ore Minerals, U.S. Geological Survey Bulletin 914, 1940; Uytenbogaardt, Tables for Identification of Ore Minerals, 1951 (Princeton University Press).

345b. CORRELATION. Stratigraphic terminology. Correlation by lithological means: facies changes, sub-surface geophysical methods, etc. Correlation by fossils, micropaleontologic methods, facies faunas, paleontologic limitations. Paleogeography and paleogeology. Throughout the course special consideration will be given to correlation as developed by the petroleum geologist.

Second term: 2 lectures, 2 hours laboratory, and 2 days field work during April or May. *Professor Stearn*

Prerequisite: Geology 121, 233b, 343a.

Text: Krumbein and Sloss, Stratigraphy and Sedimentation (Freeman).

441. ORE DEPOSITS (Fac. Eng. 1182). Nature, origin, mode of occurrence, and classification of deposits of metallic and of important non-metallic minerals; typical occurrences; geographical distribution.

2 lectures and 1 laboratory period. *Professor Gill*

Prerequisites: Geology 231c, 232b, 332a.

Text: Bateman, Economic Mineral Deposits (Wiley).

443b. EARTH PHYSICS (Half course). Physical properties of the earth and the processes associated with its existence, as inferred from astronomy, geodesy, seismology, geology, meteorology, terrestrial magnetic and thermal effects, geochemistry, etc. Hypotheses and theories based upon or explaining the above. Critical evaluation of these hypotheses and theories.

Second term: 3 lectures per week, one of which may be replaced by a conference. *Professor Saull*

Prerequisites: Geology 121, Physics 47a.

444. GEOLOGY OF NORTH AMERICA (Fac. Eng. 1180). The first part of the course will deal with the physical development of North America, period by period, and the attendant evolution of life. The second part will review the relationship of the natural resources to the major geological units.

2 lectures and 1 two-hour laboratory period per week.

Professors Elson, Riddell and Stearn

Prerequisites: Geology 231c, 232b, 332a, 333b.

Texts: Dunbar, Historical Geology (Wiley, 1949); Geology and Economic Minerals of Canada (Geological Survey of Canada, 3rd. ed., 1947).

GRADUATE COURSES

A. STRUCTURAL GEOLOGY

2 hours per week and assigned problems. *Professor Gill*

B. GEOLOGICAL COLLOQUIUM

This course must be taken by all graduate students in Geology in the First and Second years. *Professors Saull and Stearn*

C. APPLIED GEOCHEMISTRY

2 lectures and 3 hours laboratory per week. *Professor Riddell*

D. MINERAL EXPLORATION PROBLEMS

1 lecture and 2 hours laboratory per week. *Professor Riddell*

E. PETROLOGY AND PETROGRAPHY

3 hours and laboratory. *Professor Kranck*

Textbooks: Bowen, Evolution of Igneous Rocks (Princeton University Press); Barth, Theoretical Petrology (Wiley); Turner and Verhoogen, Igneous and Metamorphic Petrology (McGraw-Hill).

F. GEOLOGY OF PETROLEUM

1 lecture and 1 hour seminar per week. *Professors Clark and Stearn*

G. MINE PETROGRAPHY

1 lecture and 3 hours laboratory per week. *Professor Kranck*

I. GEOLOGY AND PROBLEMS OF THE PRE-CAMBRIAN

1 hour seminar per week and assigned problems. *Professor Gill*

J. FIELD METHODS AND PROBLEMS

1 hour seminar with assigned problems. *Professor Riddell*

L. ADVANCED PETROLOGY AND PETROGRAPHY

Seminar and at least 9 hours laboratory work per week.

Hours to be arranged. *Professor Kranck*

M. ADVANCED MINERALOGY

3 hours seminar and laboratory per week. *Professor Stevenson*

N. ADVANCED STRATIGRAPHY

Hours to be arranged. *Professors Clark and Stearn*

O. PHYSIOGRAPHY

Seminar 2 hours. *Professor Elson*

P. ADVANCED PALEONTOLOGY

Hours to be arranged. *Professor Clark*

Q. ADVANCED ECONOMIC GEOLOGY
2 hours seminar per week and assigned problems. *Professor Gill*

R. ADVANCED STRUCTURAL AND DYNAMICAL GEOLOGY
At least 2 hours seminar per week.

S. GEOCHEMISTRY
2 lectures, and one laboratory period per week. *Professor Saull*

T. SEDIMENTARY PETROGRAPHY
Seminar, hours to be arranged. *Professor Stearn*

U. GLACIAL AND PLEISTOCENE GEOLOGY
2 lectures and assignments per week. *Professor Elson*

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE (APPLIED)

The general aim of this two-year course is to train students capable of planning and carrying out effective exploration for mineral deposits, and of valuing mineral deposits in various stages of development and production. Such students must be provided with:

(1) a sound theoretical and practical background in the use of modern techniques of exploration,

(2) additional information on the economic and technical considerations which distinguish ore bodies from other mineral deposits,

(3) some insight into the legal and financial aspects of mineral exploration.

During the First year Geology graduates and Mining graduates will take different courses, the result being to bring both groups to a common level. In the Second year, with one minor exception, the work will be the same for the two groups.

Honours Geology Graduates—First Year

Geology A (Structural Geology)
Geology B (Geological Colloquium)
Geology J (Field Methods and Problems)
Mining 762 (Mining Engineering)
Mining 768 (Mineral Dressing)
Mining 770 (Ore Analysis)
Mining 782 (Mine Design)
Mining 784 (Mine Finance and Cost Control)
Physics 23 (Electricity and Magnetism)
Physics 23L (Electricity and Magnetism, laboratory)
Physics 24 (Dynamics)
Physics 25 (Statics and Hydrostatics)

Mining Engineering Graduates—First Year

Geology 331a (Optical Mineralogy)
Geology 333b (Petrography)
Geology 341b (Palaeontology)
Geology 342a (Geomorphology)
Geology 343a (Stratigraphy)
Geology 344b (Mineralography)
Geology 345b (Correlation)
Geology A (Structural Geology)
Geology B (Geological Colloquium)
Geology J (Field Methods and Problems)

Common Second Year

Geology C (Applied Geochemistry)
Geology D (Mineral Exploration Problems)
Geology F (Geology of Petroleum) *or*
Geology I (Pre-Cambrian)
Geology G (Mine Petrography)
Geology Q (Economic Geology)
Metallurgy G608 (Metallurgical Economics)
Physics 71 (Applied Geophysics)
Geology 341b (Palaeontology) } for Honours Geology graduates only
Geology 344b (Mineralography) }

Candidates obtaining this degree with distinction may be accepted as candidates for the Ph.D. degree.

DEPARTMENT OF GERMAN

Professor H. S. Reiss
Assistant Professor Bertha Meyer

PREREQUISITES

In order to be admitted to graduate work in German the candidate must have a B.A. degree with Honours in German and at least second class standing from McGill University, or an equivalent B.A. degree from another College or University of recognized standing.

In estimating the quality and contents of the required undergraduate work the following factors must be borne in mind:

1. The candidate must be able to understand and read German. He must be able to speak it fairly fluently and to write it correctly. Lectures and Seminars are conducted in German. The thesis must be written in German, under the supervision of the Department.

2. Prerequisite literary studies include:

(a) A survey of German literature from its beginnings to the 20th century, with emphasis upon developments since Lessing, supplemented by collateral readings (equivalent to two full courses).

(b) A more detailed study of several special fields. In this respect the undergraduate curriculum of McGill University comprises one full course in the history of the tragedy (one year), one half course in the German lyric, and one half course on Goethe's Faust. Substitutes for these, if found satisfactory, will be honoured by the Department.

(c) A full course in the Middle High German Language and the reading of selected passages from Middle High German Literature (one year).

COURSES FOR THE DEGREE OF MASTER OF ARTS

61. GOETHE
1 meeting weekly.

62. LESSING
1 meeting weekly. *Professor Meyer*

63. GERMAN ROMANTICISM
1 meeting weekly.

64. GOTHIC AND INTRODUCTION TO GERMAN PHILOLOGY
1 meeting weekly.

10. FROM NATURALISM TO EXPRESSIONISM
3 hours weekly.

13. HISTORY OF THE TRAGEDY IN GERMAN LITERATURE
2 hours weekly.

Two courses must be taken: German 61 and either German 62 or 63. If not already taken, German 10 or 13 may be substituted for German 62 or 63.

If the candidate has never taken the undergraduate course in Middle High German Language and Literature or its equivalent, he must make up this deficiency.

A student intending to proceed to the Ph.D. degree in German at another university is strongly recommended to take course 64 in addition to the two selected.

As a rule the candidate is advised not to attempt to complete the course work and finish the thesis in one winter session. The best arrangement is: Course studies during the winter session, thesis during the summer, graduation in the autumn.

NOTICE TO CANDIDATES FOR THE Ph.D. DEGREE IN OTHER ARTS OR SCIENCE SUBJECTS

Ph.D. candidates who have to pass a reading test in German and who have the equivalent of one college year of German may join German 4 in the Faculty of Arts and Science. This is a full course, meeting twice a week. At first some time will be devoted to teaching the method of translation, the rest of the time to the actual translation of texts chosen from the various fields of interest. Both the natural sciences and the Arts will be represented in the choice of texts. Interested Ph.D. candidates are advised to take this course during the session preceding the year in which they take their language test.

The course meets on Monday and Friday at 12 o'clock.

Required textbook: C. V. Pollard, The Practical Solution to German Translation.

DEPARTMENT OF HISTORY

Professor — H. N. FIELDHOUSE, *Chairman*

Associate Professors — C. C. BAYLEY, J. I. COOPER, W. S. REID

Assistant Professors — M. MLADENOVIC, P. ZAGORIN

The Honours B.A. in History, which is prerequisite to Graduate work in the subject, may be taken in History alone or in History and another subject. When it is taken in History alone, it requires twelve full courses in European, Canadian, British, and U.S. history, taken in a prescribed sequence, together with certain other approved courses, notably in foreign languages. It also requires the investigation, continued through two years, of a Special Subject which is studied intensively from original sources. Graduate students who enter without this qualification may find it necessary to make good any deficiency in their preparation and the Department is prepared to make this possible.

COURSES FOR THE DEGREE OF MASTER OF ARTS AND DOCTOR OF PHILOSOPHY

Candidates both for the M.A. and for the Ph.D. are required to take Seminar A, and to take the prescribed examination.

A. HISTORICAL METHOD AND THE PHILOSOPHY OF HISTORY

The members of the Department

In addition, the Department is prepared to direct the research of graduate students in the following fields:

British History:

(a) English history in the later Middle Ages. (Seminar B)

(b) English and Scottish History in the XVI Century. (Seminar D)

(c) English history, 1688-1760. (Seminar F)

(d) English history, 1870-1914. (Seminar G)

(e) Certain aspects of English economic history (Seminar E)

(f) Certain aspects of British foreign policy since 1815. (Seminar K)

European History:

(a) The constitutional development of the Holy Roman Empire in the XIII century. (Seminar C)

(b) The history of western Europe 1870-1914. (Seminar H)

(c) Certain aspects of the history of Slavonic Europe (Seminar N)

Canadian History:

(a) The social and economic history of Montreal, 1867-1900 (Seminar L)

(b) The history of Lower Canada and Quebec in the XIX Century. (Seminar J)

The Redpath Library is well equipped with printed sources for the periods and subjects mentioned above, and students pursuing research in Canadian History will be required, as occasion arises, to avail themselves of the manuscript resources of the Dominion Archives at Ottawa and the Provincial Archives at Quebec, and of parochial and other records in Montreal and its vicinity.

In the case of the Ph.D. degree, the Department may require candidates to spend one year in research at another university or repository of archives.

The preliminary Ph.D. examination will be replaced by a report from the Department on the general work and ability of each candidate and by a general examination on the historical background of the subject of the thesis; this examination can be taken either at the end of the first year or during the second, as decided by the director of the candidate's studies.

Candidates for the degree of Doctor of Philosophy should consult the Department as to the selection of the two foreign languages in which they propose to be examined, as these must be chosen for their bearing upon the candidate's special field of research.

DEPARTMENT OF HORTICULTURE

(Macdonald College)

Associate Professor H. R. MURRAY, *Chairman*

Assistant Professors JEAN DAVID
C. D. TAPER

Lecturer P. M. HARNEY

Adequate laboratory and library facilities are available for the courses listed below and for research.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE

A. POMOLOGY

Lectures and colloquium, 3 hours; laboratory, 3 hours. (2 terms)

B. VEGETABLE CROPS

Lectures and colloquium, 3 hours; laboratory, 3 hours. (2 terms)

C. FRUIT AND VEGETABLE PRESERVATION

Lectures and colloquium, 3 hours; laboratory, 3 hours. (2 terms)

D. EXPERIMENTATION. (See Course 60—Department of Agronomy)

E. PLANT PHYSIOLOGY. (See Course 61—Department of Botany)

F. ADVANCED GENETICS AND CYTOLOGY. (See Course 43b—Department of Genetics)

REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

1. A candidate must select either course A or course B or course C. If he selects A or B he must take in addition Agronomy 60 (Experimentation) and at least one further course such as Botany 61 (Plant Physiology) or Genetics 43b (Advanced Genetics and Cytogenetics). If he selects course C he must take in addition Botany 61 (Plant Physiology), Bacteriology 34 (Food Microbiology), and either Chemistry 451 (Chemistry of Foods and Feeding Stuffs) or Chemistry 452 (Advanced Food Analysis).

2. The research problem must be approved by the Departments involved, each candidate being jointly responsible to the Department of Horticulture and to some other Department, such as Botany, Genetics, or Plant Pathology, approved by the Faculty for his case.

3. The candidate must spend one summer in the Department before or during the course, or have its equivalent at some other approved institution.

DEPARTMENT OF INVESTIGATIVE MEDICINE

Professor J. S. L. Browne, *Chairman*

Lecturers Inge Dyrenfurth
C. J. P. Giroud
N. Kalant

COURSES FOR THE DEGREE OF M.Sc. or Ph.D.

61. Seminar 1 hour weekly throughout the session.

62. ADVANCED ENDOCRINOLOGY
(to be registered for as Biochemistry 62).
2 hours weekly throughout the session.

63. ADVANCED ENDOCRINOLOGY
(to be registered for as Biochemistry 63).
2 hours weekly throughout the session.
Courses 62 and 63 are given in alternate years.
Course 63 will be given in 1957-58.

64. CLINICAL ENDOCRINOLOGY
1 hour weekly throughout the session.

65. PHYSIOPATHOLOGY
(to be registered for as Experimental Medicine 65).
1 hour weekly throughout the session.

66. PRINCIPLES AND METHODS OF CLINICAL INVESTIGATION
1 hour weekly throughout the session.

67. NEWER LABORATORY METHODS
2 hours weekly half session.

GENERAL STATEMENT

The Department offers courses leading to the degrees of M.Sc. and Ph.D. in the Faculty of Graduate Studies and Research and provides research facilities for these students or for other persons proceeding to graduate degrees, diplomas or for other qualified individuals.

The courses and the direction of research in this department are given in close collaboration with the Department of Experimental Medicine and members of either department give lectures and direct the research of graduate students registered in the other.

Students may work either in the Medical Building or in one of a number of hospitals depending on the type of work done (clinical or laboratory)

or upon the individual directing the research. Part of the function of the department is the correlation of clinical investigation being done at various hospitals.

Students holding either the M.D. or the B.Sc. degree or its equivalent may enter the department provided that their standing is acceptable.

INSTITUTE OF ISLAMIC STUDIES

Professor	W. C. SMITH, *Director of the Institute*
Associate Professors	NIYAZI BERKES
	FAZLU-R-RAHMAN
Assistant Professor	F. R. C. BAGLEY
Librarian	W. J. WATSON

The Institute offers courses and undertakes to direct research in preparation for the M.A. degree in Islamic Studies, as well as conducting research at a more advanced level. It is planned that the number of Muslims and of Westerners should at all levels be approximately equal. Joint participation, both of students and staff, is a feature of the seminars. Two years of resident study are normally required for the M.A.

The Institute gives special emphasis to Islam as a religion, and to present-day developments in the Muslim world. Through co-operative study, its endeavour is to understand Islam as a contemporary and living force. It is concerned also to discover and explore possible avenues of mutual understanding between Islam and Christianity.

Candidates for degrees in Islamic Studies may, with the consent of those departments, be permitted or required to take relevant courses offered by the Departments of History, Economics and Political Science, Philosophy, Comparative Religion, etc. In special cases also these departments recognize participation in relevant courses offered by the Institute as contributing to their own advanced degrees. Such participation by students from other departments is welcomed by the Institute.

The Institute stresses competence in language. At the M.A. level, one Islamic language is required; of Muslim students, one Islamic language other than their own. For doctorate work, all students, Muslim and Western, must have a reading knowledge of *both* French and German (for access to western scholarship on Islam) *and* two Islamic languages, of which one will normally be Arabic.

(A) RESEARCH SEMINARS: ISLAM IN THE MODERN WORLD

Each year, approximately two research seminars are planned on modern developments in Islam in particular areas (such as: the Arab world, Turkey, Iran, India and Pakistan, Indonesia).

1. ISLAMIC DEVELOPMENTS IN THE MODERN ARAB WORLD

The Wahhabi movement; the Sanusi movement; Jamal al-Din al-Afghani; Muhammad 'Abduh; the Azhar; the modernists; the Ikhwan al-Muslimun. The relation between the Islamic and the Arabist factors in modern nationalism.

2 hours. (*Not given in 1957-58.*)

2. THE DEVELOPMENT OF SECULARISM IN MODERN TURKEY

An analysis of the transition from Ottoman institutions and ideas to those of contemporary Turkey. Beginning with the eighteenth century background of the early attempts at reform, attention is given to the changes during the *Tanzimat*, "Young Turk", and Republican periods, as a preparation for an understanding of contemporary problems raised by secularization.

2 hours. *Professor Berkes*

3. MODERN TRENDS IN ISLAM IN INDIA AND PAKISTAN

Islamic developments in India, from the eighteenth century to the emergence of Pakistan.

2 hours. *Professor Fazlu-r-Rahman*

Texts: Shah Waliyullah, *Hujjat Allah al-Balighah, Tafhimat Ilahiyah*, Isma'il Shahid, *'Abaqat;* Sir Sayyid Ahmad Khan, *Tafsir, Laykcharz ka Majmu'ah;* Amir 'Ali, *The Spirit of Islam;* Iqbal, *Reconstruction*, and the poetical works; Abu-l-Kalam Azad, *Tarjumanu-l-Qur'an;* Mawdudi, selected writings; Pakistan constitutional documents.

(B) SEMINARS ON THE HERITAGE OF CLASSICAL ISLAM

11. HISTORICAL DEVELOPMENT OF ISLAMIC THEOLOGY

An endeavour to understand and appreciate, and to make intelligible in contemporary terms, significant attempts of Muslims at different periods in the past to give intellectual expression to their faith. Special reference to the Mu'tazilah (with examination of the concepts 'orthodox' and 'unorthodox'), al-Ash'ari, al-Ghazzali, al-Taftazani. Consideration of the role in Islam of such intellectual expression—alongside of, or in contradistinction from, other modes of expression: artistic; mystical; and, particularly, moral and social (the Law).

2 hours. *Professor Smith and Staff*

12. AL-GHAZZALI

The historical background. His life. His writings; viewed in relation to the context out of which they emerged, and considered also for their potential significance for Muslims to-day.

2 hours. *Professor Fazlu-r-Rahman*

13. THE SOCIAL INSTITUTIONS OF ISLAM—(1) Government and State.

An introductory consideration of the chief varieties of religious attitude to society in general, and to government in particular; their range in man's religious history generally, and recent attempts at systematic presentation and analysis. The situation of Islam in this regard, within the wider context. A survey of the historical evolution of this Islamic view, and of the various patterns and concrete manifestations of Muslim political theory and practice through the centuries. This historical development will be considered chiefly under these headings:

(i) The first Islamic *Ummah*;

(ii) The classical period of Islamic history: the 'Abbasi *khilafah* in practice, and the *khilafah* idea;

(iii) The rise of "sultanism" from the time of the Seljuks, and the organization of authority in the three great mediaeval Muslim empires, Ottoman, Safawi, and Mughul;

(iv) The rise of modern states and their challenge to Islam: the Turkish secular state; the Persian constitutional monarchy; the Arab states and their political problems; the Islamic state of Pakistan; Islamic state vs. nationalism in Indonesia.

Professor Berkes

25. READINGS IN THE CLASSICAL ARABIC PHILOSOPHERS

A consideration of the development of philosophic thought among the Muslims, and its relation to the late Greek background; with special reference to Ibn Sina (Avicenna). Some of his writing, especially the *Kitab al-Najat*, or al-Ghazzali's *Tahafut*, will be read in Arabic. The role of *falsafah* in classical Islamic culture and thought.

3 hours. *Professor Fazlu-r-Rahman*

(C) COURSES ON ISLAM

55. ISLAMIC HISTORY: THE CLASSICAL AND MEDIAEVAL PERIODS

The Arabs to the fall of Baghdad and Granada. The rise and ascendancy of the Seljuqs. The Mongols; the Mamluks. The Turkish, Persian, and Indian Islamic empires. Islam in Indonesia.

Professor Bagley

56. ISLAMIC HISTORY: THE MODERN PERIOD

The Islamic world in the nineteenth and twentieth centuries.

Professor Bagley

(These two courses are available in alternate years; the "classical and mediaeval period" will be given in 1957-58.)

57. INTRODUCTION TO ISLAM

An attempt to present and interpret the faith of Islam in such a way as to clarify how it appears both to an outsider and from within. The scripture, prophet, institutions, and history of the religion, with particular attention to meaning.

3 hours (Half course). *Professor Smith*

58. THE GEOGRAPHY OF THE ISLAMIC WORLD

Professor Zaborski (Department of Geography)

3 hours (Half course).

(D) LANGUAGE INSTRUCTION

Not all courses are available each year. All language courses are for two terms. The elementary courses in each case are five hours per week, and do not normally carry graduate credit unless followed by a second year in the same language. Other levels are three hours per week.

100. ELEMENTARY ARABIC

101. LOWER INTERMEDIATE ARABIC

102. HIGHER INTERMEDIATE ARABIC

103. ADVANCED ARABIC (ARABIC PHILOSOPHIC OR THEOLOGICAL LITERATURE) For 1957-58 the same as ISLAMICS 25.

110. ELEMENTARY TURKISH

111. LOWER INTERMEDIATE TURKISH

112. HIGHER INTERMEDIATE TURKISH

113. ADVANCED TURKISH (TURKISH HISTORICAL LITERATURE)

120. ELEMENTARY PERSIAN

121. LOWER INTERMEDIATE PERSIAN

122. HIGHER INTERMEDIATE PERSIAN

123. ADVANCED PERSIAN (PERSIAN RELIGIOUS POETRY)

130. ELEMENTARY URDU

131. LOWER INTERMEDIATE URDU

132. HIGHER INTERMEDIATE URDU

133. ADVANCED URDU

140. ELEMENTARY MALAY AND INDONESIAN

FACULTY OF LAW

Professors	W. C. J. Meredith, *Dean*
	Louis Baudouin
	Maxwell Cohen
	J. C. Cooper
	C. S. LeMesurier
	Eugène Pépin
	F. R. Scott
Associate Professors	J. G. Castel
	G. E. LeDain
Lecturer	Julius Gazdik

COURSES FOR THE DEGREE OF MASTER OF CIVIL LAW

Candidates must hold the degree of B.C.L. with at least second class honours from McGill University, or its equivalent. They must select one of the four following departments of study, in which they must follow at least one course throughout a session of residence, and must under supervision prepare an acceptable thesis. The general rules for the Master's degree will apply.

The departments of study, which may not all be offered each year, are

Roman Law

Civil Law

Commercial and Maritime Law

Public Law, including International Law

Students may also be required to follow cognate courses in other Departments of the Faculty.

COURSES FOR THE DEGREE OF MASTER OF LAWS

This degree is offered only in the Institute of International Air Law (Eugène Pépin, *Director*). Candidates must hold a degree in Law or be admitted to the Bar, and only those highly qualified or recommended can be accepted; it is desirable that they should possess a working knowledge of both English and French.

The curriculum consists of at least one session's resident study at the Institute. Students whose work is found satisfactory will be permitted to submit a dissertation on an approved subject within the field of the Institute's work during the following year, even though not then in residence. They must be registered, as resident or non-resident, for the session in which the dissertation is submitted. A very high standard will be required for this degree.

Students will be required to take the four courses listed below, which are prescribed. Others may be selected from courses given in the Law Faculty.

International Transport Law
Public International Air Law
Private International Air Law
International Air Regulations

LIBRARY SCHOOL

Associate Professor	VERNON ROSS, *Director*
Assistant Professor	VIRGINIA E. MURRAY
Lecturer	VIOLET COUGHLIN
Visiting Lecturers	

Requirements for admission are stated on page 2626.

COURSES FOR THE DEGREE OF MASTER OF LIBRARY SCIENCE

In addition to the thesis it will be necessary to take one required and the equivalent of two full elective courses. Electives may not all be available in any one year. Enquiries should be addressed to the Library School office.

REQUIRED

A. Thesis.

B. Research methods in library science.

ELECTIVE

C. Canadiana; archival and historical materials, their care and use.

D. Documentation; the acquisition and retrieval of research material. (Half course.)

E. Government documents. (Half course.)

F. Serials. (Half course.)

G. Cataloguing and classification; problems and developments.

H. The library in the community; school, college, and adult education work.

I. A special subject may be taken in another Department of the University provided that the candidate has the qualifications normally required for advanced work in that field. Special permission must first be obtained from the Dean, the Director of the School and the Chairman of the Department concerned.

DEPARTMENT OF MATHEMATICS

Professors
HERBERT TATE, *Chairman*
CHARLES FOX
E. M. ROSENTHALL
P. R. WALLACE
HANS ZASSENHAUS

Associate Professors
J. D. JACKSON
HYMAN KAUFMAN
WACLAW KOZAKIEWICZ
J. LAMBEK
T. F. MORRIS
J. E. L. PECK
R. T. SHARP
C. D. SOLIN

Assistant Professors
M. D. BURROW
P. L. BUTZER
G. D. FINDLAY
T. V. NARAYANA
B. A. RATTRAY
L. P. WOOD

COURSES FOR THE DEGREE OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

Applied Mathematics and Mathematical Physics

661. METHODS OF MATHEMATICAL PHYSICS. Introduction to the equations of mathematical physics, classification of differential equations, integral representations, the solution of problems of mathematical physics involving the Laplace, Poisson, and scalar and vector Helmholtz and wave equations; tensor calculus.

3 hours. *Professor Wallace*

Textbook: H. Feshbach and P. M. Morse, Methods of Theoretical Physics (Technology Press, M.I.T.).

662. QUANTUM MECHANICS (Physics 62). Introduction to the ideas and methods of quantum theory, with illustrations from the simpler applications in atomic and nuclear physics.

3 hours. *Professor Sharp*

Textbooks: D. Bohm, Quantum Theory (Prentice-Hall); L. Schiff, Introductory Quantum Mechanics (McGraw-Hill).

663. ADVANCED QUANTUM MECHANICS. Methods of advanced quantum theory, including non-relativistic and relativistic scattering processes; Dirac electron theory, interaction of radiation with atomic and nuclear systems, quantum electrodynamics, quantum field theory.

2 hours. *Professor Morris*

References: Fermi, Elementary Particles (Yale); Heitler, Quantum Theory of Radiation (Oxford); Kramers, Quantentheorie (Edwards); Mott and Massey, Theory of Atomic Collisions (Oxford); Pauli, Wellenmechanik (Edwards); Schiff, Quantum Mechanics (McGraw-Hill); Sommerfeld, Wellenmechanik (Ungar); Wentzel, Quantum Theory of Fields (Interscience)

664. MATHEMATICS OF QUANTUM CHEMISTRY. Atomic structure, chemical bonding, theory of valency, elements of quantum statistical mechanics: for second year graduate students.

2 hours. *Professor Sharp*

Textbooks: Heitler, Elementary Wave Mechanics (Oxford); Glasstone, Theoretical Chemistry (Van Nostrand).

References: Pauling and Wilson, Introduction to Quantum Mechanics (McGraw-Hill); Dushman, Elements of Quantum Mechanics (Wiley); Gurney, Elementary Quantum Mechanics (Cambridge); Mott, Outline of Wave Mechanics (Cambridge); Penney, Quantum Theory of Valency (Methuen); Eyring, Kimball, and Walter, Quantum Chemistry (Wiley).

665. STATISTICAL MECHANICS AND KINETIC THEORY OF MATTER (Physics 65). Classical and quantum statistical mechanics, with applications; statistical theories of the gaseous, liquid, and solid states, including kinetic theory of gases, Debye theory of specific heats, dieletrics, and magnetism, theory of strongly degenerate gases, Planck radiation law, electron theory of metals, Bose-Einstein condensation theory of liquid helium II.

2 hours. *Professor Sharp*

Textbook: Lindsay, Physical Statistics (Wiley).

References: Mayer and Mayer, Statistical Mechanics (Wiley); Fowler, Statistical Mechanics (Cambridge); Tolman, Statistical Mechanics (Oxford); Schrödinger, Statistical Thermodynamics (Cambridge); Rice, Statistical Mechanics (Constable); Kennard, Kinetic Theory of Gases (McGraw-Hill); Loeb, Kinetic Theory of Gases (McGraw-Hill).

666. RELATIVITY. The Lorentz transformation, mechanics in special theory of relativity, relativistic formulation of electromagnetic theory. Motion of particles in the electromagnetic field, the physics of relativistic particles, with reference to high-energy accelerators and cosmic ray phenomena,

spinor calculus, the Dirac theory of the electron, relativistic invariance in quantum theory. Other relativistic fields, e.g. meson.

2 hours. *Professor Wallace*

References: MacCrea, Relativity Physics (Methuen); Bergmann, Introduction to the Theory of Relativity (Prentice-Hall); Heitler, Quantum Theory of Radiation (Oxford).

667. FLUID DYNAMICS. Equations of motion. Conformal transformations and complex potential theory. Airfoil theory. Vortex theory in two and three dimensions. Theory of viscous flow. Theory of boundary layer.

3 hours. *Professor Fox*

References: Milne-Thompson, Hydrodynamics (Macmillan); Streeter, Fluid Dynamics (McGraw-Hill).

668. ELECTROMAGNETIC THEORY. General properties of the electromagnetic field, relativistic formulation of the theory. Fields and radiation produced by relativistic particles, with application to the angular and frequency distribution from particles in high energy accelerators. Interaction of radiation and charged particles with matter, energy loss, bremsstrahlung, Weiszacker-Williams method. Radiation reaction and damping, classical divergence difficulties. Radiation by finite systems, multipole expansion, angular momentum of radiation, semi-classical treatment of radiation from quantized systems.

2 hours.

References: Heitler, Quantum Theory of Radiation (Oxford); Landau and Lifshitz, Classical Theory of Fields (Addison-Wesley); Stratton, Electromagnetic Theory (McGraw-Hill).

669. SEMINAR IN APPLIED MATHEMATICS. Graduate students proceeding to an advanced degree with specialization in Applied Mathematics will be expected to attend and to participate in this seminar, which will be devoted to discussions of current research topics.

Professors Jackson, Morris, Sharp, and Wallace

670. THEORY OF THE SOLID STATE. Motion of electrons in crystals; energy bands and Brillouin Zones. Theory of metals. Theories of electric and thermal conductivity, Hall effect, magnetic susceptibility and specific heat of crystals. Types of binding. Electronic motion in ionic crystals; induced conductivity in insulators. Semi-conductors; electron emission and surface contact problems.

2 hours. *Professor Wallace*

References: Mott and Jones, Properties of Metals and Alloys (Oxford), Seitz, Modern Theory of Solids (McGraw-Hill); Mott and Gurney, Electronic Processes in Ionic Crystals (Oxford); Wright, Semi-Conductors (Methuen); Slater, Quantum Theory of Matter (McGraw-Hill); Rice and Teller, The Structure of Matter (Wiley).

671. GROUP THEORETICAL METHODS IN QUANTUM MECHANICS. Introduction to the ideas and methods of group theory with applications to quantum mechanics; rotation, permutation, Lorentz groups; classification of atomic and molecular spectra; theory of nuclear supermultiplets.

2 hours. *Professor Morris*

References: S. Bhagavantam and T. Venkatarayudu, Theory of Groups and its Application to Physical Problems (Waltair); H. Weyl, The Theory of Groups and Quantum Mechanics (Methuen); Wigner, Gruppentheorie (Edwards); Van der Waerden, Die gruppentheoretischen Methoden in der Quantenmechanik (Springer).

672. THEORETICAL NUCLEAR PHYSICS. The quantum mechanics of nuclear processes, including nuclear ground state properties, nuclear forces, structure of nuclei, beta and gamma emission, nuclear reactions at low and high energies.

2 hours. *Professor Jackson*

References: Bethe, Elementary Nuclear Theory (Wiley); Fermi, Nuclear Physics (Chicago); Gamow and Critchfield, Atomic Nucleus and Nuclear Energy Sources (Oxford); Rosenfeld, Nuclear Forces (Interscience).

673. MATHEMATICAL THEORY OF ELECTRICITY AND MAGNETISM. Theory of electrostatic charge and potential. Problems in two and three dimensional charge distribution. Application of Gauss, Green, and Stokes theorems. Electric currents and problems in networks. Magnetism and magnetic vector potentials. Problems in three dimensional magnetic distributions. Electromagnetic induction. Maxwell's field equations. Electromagnetic waves. Theory of the Retarded Potential. The postulates of special relativity, Lorentz transformations, field of a moving charge.

2 hours. *Professor Fox*

Text: William R. Smythe, Static and Dynamic Electricity (McGraw-Hill).

674. MATHEMATICAL THEORY OF ELASTICITY. Components of stress and strain. Equilibrium and compatibility equations, problems with boundary conditions. The use of polar co-ordinates and the complex variable in two dimensional problems. Strain-energy method and the principle of virtual work. Torsion of bars, shafts, and tubes. The use of polarized

light, soap films, and membranes in solving problems of stress. The propagation of waves in elastic media. Waves of distation and distortion. Applications to problems of seismology.

2 hours. *Professor Fox*

Texts: S. Timoshenko, Theory of Elasticity (McGraw-Hill); A. E. H. Love, A Treatise on the Mathematical Theory of Elasticity (Cambridge University Press).

Algebra and Theory of Numbers

771. GROUPS: Simple properties of groups.

Modules with operators, Algebras, fields, polynomials, factorization of polynomials, algebraic equations, finite extensions, splitting fields.

Galois Theory: Group representations I; solving of algebraic equations by radicals, solvable groups. Other applications.

Noether rings, valuation theory, ideal theory, application: cyclotomic fields, Fermat theory. Hyper complex numbers, semi-simple algebra, skew fields. Group Representation number II.

2 hours. *Professor Zassenhaus*

Textbooks: Jacobson, Theory of Rings; Van der Waerden, Modern Algebra.

773. DIOPHANTINE ANALYSIS AND ALGEBRAIC NUMBERS. This course will serve as an introduction to the problems of Diophantine analysis, will develop the theories of algebraic number fields and integral quaternions, as a basis for application to Diophantine problems and will include some of these applications.

2 hours. *Professor Rosenthall*

Textbook: Skolem, Diophantische Gleichungen (Chelsea).

774. GEOMETRY OF NUMBERS. Linear spaces and vector groups in Euclidean n-space; Minkowski's theorems on convex bodies, successive minima of gauge functions and their consequences; linear inequalities including Kronecker's general approximation theorem and products of linear forms; reduction theory, extrema of quadratic forms and problems of closest packing.

2 hours. *Professor Rosenthall*

776. SEMINAR ON ALGEBRAIC LIE GROUPS OF PRIME CHARACTERISTIC

3 hours. *Professor Zassenhaus*

777. ANALYTIC NUMBER THEORY. Arithmetical functions, elementary theory of the distribution of primes; proof of the prime number theorem;

equivalent statements of the prime number theorem; Dirichlet's Theorem on number of primes in arithmetic progression; Dedekind modular functions, asymptotic and convergent formulas for the partition of n; estimates of exponential sums; the Zeta function and its generalizations; recent developments in the elementary theory.

2 hours. *Professor Rosenthall*

778. GROUP THEORY. Historical introduction. Axioms of group theory. Groups and sub-groups. Lattice theory I. Notion of homomorphy and appropriate theorems. Lattice theory II. Free products; direct products; constructions of groups by generators and defining relations. Theory of p-groups; permutation groups; representation theory and its application to group theory. Application of group theory in elementary number theory, in quantum mechanics, in mineralogy, in topology.

2 hours. *Professor Burrow*

779. ANALYSIS ON GROUPS. Locally compact groups, Haar measure, function spaces, group algebra, Character groups, Fourier transforms, Almost periodic functions.

2 hours. *Professor Rattray*

Analysis

780. INFINITE SERIES. Infinite series, theory of convergence; summability of divergent series, Toeplitz's theorem, special methods of summation, including the Cesàro, Abel, and Hausdorff methods. Tauberian theorems for power series, Karamata's theorem. Application of the theory to Fourier series, including the theorems of Fejér and Fatou.

2 hours. *Professor Butzer*

References: Cooke, Infinite Matrices and Sequence Spaces (MacMillan); Hardy, Divergent Series (Oxford); Karamata, Sur les théorèmes inverses des procédés de sommabilité (Paris); Knopp, Theory and Application of Infinite Series (Blackie).

781. FOURIER TRANSFORM THEORY. Fourier series. Fourier integrals and transforms. Functional spaces. Integral equations; dual integral equations.

2 hours. *Professor Fox*

Prerequisites: Mathematics 34b, 44.

References: Whittaker and Watson, Modern Analysis (C.U.P.); Titchmarsh, Theory of the Fourier Integral (Oxford).

782. SPECIAL FUNCTIONS

2 hours. *Professor Rosenthall*

783. CALCULUS OF VARIATIONS. First and second variations of an integral. Principle of least action and Hamilton's principle. Isoperimetrical problems, Rayleigh-Ritz principle. Strong variations, theories of Weierstrass and Hilbert. Complete solutions of selected problems.

2 hours. *Professor Fox*

References: Bolza, Lectures on the Calculus of Variations (Hafner); Bliss, Calculus of Variations (Open Court).

784. THEORY OF FUNCTIONS OF A REAL VARIABLE. Point set theory; measure theory, measurable sets, Lebesgue-Stieltjes measures; measurable functions, approximation of measurable functions, theorems of Lusin and Vitali-Carathéodory. The Lebesgue integral; Radon-Nikodym theorem, Fubini's theorem. Convergence theorems, convergence in mean of order p, Lebesgue spaces Lp; Orlicz spaces Lq; mean ergodic theorem. Differentiation, Vitali's theorem. The Stieltjes integral.

2 hours. *Professor Peck*

References: Munroe, Introduction to Measure and Integration (Addison-Wesley); Riesz and Sz.-Nagy, Leçons d'Analyse Fonctionnelle (Budapest).

785. PROBLEMS AND METHODS IN MATHEMATICS. This course is designed for First and Second year graduate students. It consists in a systematic study of chosen parts of Pure Mathematics through the medium of discussions of problems and original papers.

3 hours. *Professor Kozakiewicz*

786. FUNCTIONAL ANALYSIS. The course will include Banach spaces, linear operations and functionals, the Hahn-Banach theorem, the general form of linear functionals in the spaces of bounded, continuous, and Lebesgue integrable functions; applications to abstract integration. The moment problem and differential and integral equations will also be discussed.

2 hours. *Professor Kozakiewicz*

References: Banach, Théorie des Opérations Linéaires (Hafner); Hille, Functional Analysis and Semi-Groups (A.M.S.).

787. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. The course will include analytic continuation, simple functions, normal families, conformal representation, the Riemann mapping theorem, entire functions, elliptic functions, Picard's theorem, Poisson's integral formula and Dirichlet's problem in the plane.

2 hours. *Professor Kozakiewicz*

References: Titchmarsh, Theory of Functions (Oxford); Bieberbach, Lehrbuch der Funktionentheorie (Chelsea).

788. DIFFERENTIAL EQUATIONS. Existence theorems and approximation methods; matrices and systems of equations. Boundary and characteristic value problems. Singularities of various types with stress on physical interpretations; stability theory.

2 hours. *Professor Kaufman*

References: Kamke, Differentialgleichungen (Chelsea); Ince, Ordinary Differential Equations (Dover); Collatz, Eigenwertprobleme (Chelsea).

789. ADVANCED TOPICS IN DIFFERENTIAL EQUATIONS
The course will consist of a selection of topics in recent developments in the theory of differential equations, including existence and uniqueness theorems, non-linear theory, oscillation theorems, differential-difference equations.

2 hours. *Professor H. Kaufman*

Geometry and Topology

892. DIFFERENTIAL GEOMETRY. Differentiable manifolds and their tangent vector spaces, tensor algebra, Riemannian metric, affine connection, covariant differentiation, parallel transport, geodesics, invariant differential operators, curvature tensors, isometries, imbeddings, curves and surfaces, Cartan's exterior differential forms, harmonic forms and cohomology, Poincaré's formula, Gauss-Bonnet theorem.

2 hours. *Professor Rattray*

893. ANALYTIC AND SYNTHETIC PROJECTIVE GEOMETRY. The course will follow a classical presentation. Some of the topics emphasized are: perspectivity and projectivity, projective theorems relating to the conics, groups of linear transformations, correlations and polarities.

2 hours. *Professor Tate*

Reference: Campbell, Advanced Analytic Geometry (Wiley).

894. ALGEBRAIC GEOMETRY. Quadratic surfaces, Grassman manifolds, higher curves; valuations, divisors; Riemann-Roch theorem, applications; De Rham theorem; harmonic integrals; multiplicity and local uniformisations; Riemann surfaces.

2 hours. *Professor Zassenhaus*

Prerequisite: A good working knowledge of modern algebra.

References: C. Chevalley, Introduction to the theory of Algebraic Functions of one variable (Princeton); Waerden, Einfuhrung in die algebraische Geometrie (Dover); Hodge and Pedoe; Algebraic Geometry I and II (Macmillan).

895. TOPOLOGY. Elements of point set topology, including compactness, connection and separability; separation axioms, and metrizability theorems; finite complexes and their homology and cohomology groups. Betti numbers and torsion coefficients, singular homology groups, fundamental group and covering spaces, manifolds and duality theorems, intersections and cup products.

3 hours. *Professor Rattray*

Textbook: Seifert and Threlfall, Lehrbuch der Topologie (Chelsea).

Probability and Statistics

900. SEMINAR IN STATISTICS. Topics selected from advanced probability and statistics. Recurrent Events, the "problème du scrutin" and its generalization, random walk problems, introduction to Markoff chains and stochastic processes, sequential methods and statistical decision problems with reference to Probit Analysis.

2 hours. *Professors Kozakiewicz and Peck*

Text: W. Feller, An Introduction to Probability Theory and its Applications. Vol. I.

901. THE DESIGN OF EXPERIMENTS. Principles of Experimental design, least squares aspects of the Anov; randomization; analysis of randomized blocks, Latin squares and incomplete block designs; factorial and split-plot experiments, confounding. The construction of designs: Orthogonal sets of Latin squares, balanced and partially balanced incomplete block designs, the general symmetrical factorial design.

2 hours. *Dr. Narayana*

References: O. Kempthorne, The Design and Analysis of Experiments; Cochran and Cox, Experimental Designs.

902. THEORY OF GAMES. Zero-sum; two-person games, finite and infinite; games in extensive form; n-person games; applications; recent contributions.

3 hours. *Professor Peck*

History and Foundations

1000. HISTORY AND DEVELOPMENT OF MATHEMATICS. Mathematics in the pre-Greek world, among the Arabs, in Renaissance Europe, in the post-Renaissance period, and in the Nineteenth Century. The modern period. Development of mathematics from the historical point of view. Lectures, reading, and reports. The emphasis is on mathematical ideas rather than on biography.

2 hours.

Textbook: Bell, Development of Mathematics (McGraw-Hill); Neugebauer, Vorgriechische Mathematik (Springer); Gow, Greek Mathematics (Hafner).

1001. MATHEMATICAL LOGIC. A formal treatment of logical systems such as the propositional calculus, quantification theory, formalized arithmetic and set theory, the calculus of lambda conversion, with emphasis on questions of consistency and completeness. The theory of recursive or computable functions is developed in detail and applied to the construction of undecidable statements in arithmetic, the theorems of Gödel and Church, the word problem in semigroups.

3 hours. *Professor Lambek*

Reference: Kleene, Introduction to Metamathematics (Van Nostrand).

General Remarks

1. The following undergraduate mathematical courses may, in special circumstances, be taken for graduate credit:

Listed in the Arts and Science Announcement—

331 (Statics and Dynamics); 333 (Advanced Calculus); 334 (Differential Equations); 439 (Mathematical Statistics); 441 (Mathematical Physics); 442 (Algebra); 443 (Numerical Analysis); 444 (Analysis); 446a (Fluid Dynamics); 446b (Mathematcial Theory of Electricity and Magnetism); 448b (Advanced Dynamics); 449b (Tensor Analysis).

Listed in the Engineering Announcement—

1260 (Differential Equations).

2. The attention of students taking the course for M.A. or M.Sc. is called to the University requirements described on pages 2621, 2622 and 2623 of this Announcement. Students seeking an M.A. or M.Sc. degree are required to pass in three approved full courses in mathematics and to participate in any assigned seminars, and to present an acceptable thesis. They may be required to submit to an examination on the subject matter of the thesis and the general background of the field of mathematics with which the thesis is concerned.

3. Attention is called to the evening courses leading to the degree of Master of Engineering, which are described in this Announcement under the Department of Electrical Engineering, and to other evening courses.

4. Owing to the increasing impact of Pure and Applied Mathematics upon a large variety of fields of study, attention is particularly called to the possibility of arranging a suitable programme of mathematical courses to meet the individual needs of graduate students majoring in fields other than those listed above.

5. The attention of students who contemplate working for a Ph.D. degree with Mathematics as a major subject is called to the University regulations on pages 2627-2630 of this Announcement. Properly qualified students may be admitted to candidacy for the Ph.D. in Pure Mathematics or in Applied Mathematics by the Graduate Committee of the Department with the approval of the Dean of the Faculty of Graduate Studies and Research. Except in very exceptional cases, students would be admitted to candidacy only after having completed the work for the Master's degree at McGill or elsewhere with distinction. The Ph.D. degree is awarded on the basis of the attainment of a good knowledge of mathematics in general and the writing of a thesis which definitely advances the subject which it treats.

Detailed information regarding departmental requirements is contained in a bulletin, which is issued by the Department. This can be obtained on application to the Chairman of the Department. The courses offered during the 1957-58 session will be selected from numbers 661 to 1001 and will be announced at the beginning of the session. The following courses were given during the 1956-57 session; 661, 662, 664, 666, 668, 669, 670, 672, 771, 773, 775, 781, 789, 900, 901, 1001.

DEPARTMENT OF MECHANICAL ENGINEERING

Professors — D. L. MORDELL, *Chairman*; WILLIAM BRUCE

Associate Professors — A. R. EDIS; J. M. WHITE

The requirements for the M.Eng. degree in mechanical engineering include lecture courses, research work and thesis, and participation in the seminar. Candidates are required to take courses in other departments and are encouraged to take cognate subjects in other faculties.

COURSES FOR THE DEGREE OF MASTER OF ENGINEERING

All students proceeding to the Master of Engineering degree in Mechanical Engineering are required to have a satisfactory credit in Course 1260 and such other undergraduate courses as are prerequisite to the graduate courses selected.

G504. SEMINAR.

1 to 2 hrs. per week, session.

All candidates are required to participate.

1. INDUSTRIAL ENGINEERING

G505. MANAGEMENT PROBLEMS
2 hours. *Professor White*

G507. STATISTICAL CONTROL
2 hours. *Professor White*

2. MACHINE DESIGN

G510. ADVANCED MACHINE DESIGN
2 hours. *Professor Edis*

G511. SELECTED TOPICS IN ADVANCED MACHINE DESIGN
6 hours drafting room. *Professor Edis*

G512. PROCESS EQUIPMENT DESIGN
2 hours. *Professor Edis*

3. THERMAL POWER

G518. GAS TURBINE PROBLEMS AND DISCUSSION
2 hours. *Professor Mordell*

G519. GAS TURBINES
2 hours. *Professor Mordell*

G520. HEAT TRANSFER
2 hours, one term. *Professor Mordell*

G521. NUCLEAR ENGINEERING
2 hours, one term. *Professor Edis*

DEPARTMENT OF METALLURGICAL ENGINEERING

Professor	J. U. MACEWAN, *Chairman*
Associate Professor	H. H. YATES
Assistant Professor	J. S. KIRKALDY

Adequate laboratory and library facilities are available for the courses listed below and for research.

All applicants for admission to advanced studies in the Department of Metallurgical Engineering are required to have fundamental training in Physical Chemistry and Chemical Thermodynamics, and applications of this training to metallurgical processes.

COURSES FOR THE MASTER'S DEGREE

Two degrees, Master of Engineering in Metallurgical Engineering and Master of Science in Metallurgy are available each having its own particular prerequisites.

A. Master of Engineering in Metallurgical Engineering

Candidates for the degree of Master of Engineering must hold a degree in Metallurgical Engineering and complete the following requirements.

G601. PROPERTIES AND STRUCTURES OF METALS. Atomic structure; electron theory of metals in the solid state; theory of plastic deformation of metals applied to single crystals; phase transformation; recrystallization; creep; assigned reports.

2 hours per week, session. *Professor Kirkaldy*

G602. HYDROMETALLURGY. The application of physical and chemical principles to hydrometallurgical processes.

2 hours per week, session. *Professor Yates*

G603. UNIT PROCESSES IN EXTRACTIVE METALLURGY. Theoretical studies of selected processes for the smelting and refining of metals. Engineering applications of these processes will be considered. Reports will be assigned.

2 hours per week, session. *Professor MacEwan*

G608. PROCESS METALLURGY. This course is for candidates for the degree of Master of Science (Applied) in Geology. Extractive metallurgical processes with emphasis on the utilization and evaluation of ores and concentrates.

2 hours per week, session. *Professor MacEwan*

1260. DIFFERENTIAL EQUATIONS (Faculty of Engineering Announcement).

2 hours per week, session.

G605. METALLURGICAL THESIS. A thesis is to be submitted on research conducted in one of the following fields:

(a) Hydrometallurgy
(b) Pyrometallurgy
(c) Physical Metallurgy

Applicants holding an Engineering degree in some related field can proceed to the Master's degree by taking a qualifying year before being registered as degree candidates in the Faculty of Graduate Studies and Research. Students in this category must have their records appraised by the Department and a programme of studies outlined for the qualifying year.

B. Candidates for the degree of Master of Science in Metallurgy must complete the following requirements.

Candidates for this degree must have had previous training in the basic sciences of chemistry or physics or both and hold a Bachelor of Science or equivalent degree. Students who hold a Bachelor of Science degree in Metallurgy or its equivalent may be able to proceed to the Master's degree in one year.

Students whose training is deficient will be required to take courses in Metallurgy and in cognate subjects in Chemistry and Physics during a qualifying year before being registered as degree candidates in the Faculty of Graduate Studies and Research.

Applicants for admission will have their academic records appraised by the Department of Metallurgy and a programme of studies will be outlined.

The graduate courses in the Department are the same as outlined for the degree of Master of Engineering.

DEPARTMENT OF MINING ENGINEERING

Professor	R. G. K. Morrison, *Chairman*
Associate Professor	J. S. Godard
Assistant Professor	Talat Salman

Library and laboratory facilities are available for postgraduate studies and research.

For the Master's Degree a thesis must be submitted on a suitable subject, normally under one of the following broad headings: (1) mineral dressing; (2) mineral or mine economics; (3) industrial relations and management; (4) mine ventilation; (5) mining methods; (6) rock pressure problems in mines.

Normally three full courses of study are required in addition to the thesis and considerable latitude is permitted in their selection. The following are optional courses for the Master's Degree and other graduate and undergraduate courses in other departments of the University may be optional or required depending on the subject selected for a thesis.

784. Mine Finance and Cost Control. A course given to fourth year Mining Engineering students, but available to postgraduates who have not taken it. Refer to the Announcement of the Faculty of Engineering.

2 lectures per week, second term. *Mr. R. S. Boire*

G700. Organization and Management of Mines. A reading and discussion course.

2 hours per week, session. *Professor Morrison*

G701. MINE VENTILATION. A course of study and investigation conducted with the co-operation of the Department of Mechanical Engineering. Concerns the supply and flow of fresh air to mines, dust suppression, and the thermodynamics of deep-level ventilation.

2 hours per week, session.

Department of Mechanical Engineering and Professor Morrison

G702. COLLECTIVE BARGAINING SEMINAR. Refer to the Announcement of the Faculty of Arts and Science (Economics 442).

3 hours per week, session. *Professor H. D. Woods*

G703. MINERAL DRESSING. An advanced course covering—Amalgamation, Cyanidation, Gravity Concentration, Flotation, Roasting, and Leaching.

1 lecture and 6 hours laboratory per week, session. *Professor Godard*

DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

5-7/58

Chairman	WILDER PENFIELD
Professors	THEODORE RASMUSSEN WILLIAM CONE
Professor of Experimental Neurology (*In charge of Graduate Studies*)	HERBERT JASPER
Associate Professors	K. A. C. ELLIOTT FRANCIS MCNAUGHTON DONALD MCRAE
Assistant Professors	ARTHUR ELVIDGE PRESTON ROBB
Lecturers	J. B. R. COSGROVE PIERRE GLOOR

Candidates for graduate degrees must first meet the general qualifications and requirements for admission to the Graduate School (for M.Sc. see page 2622, for Ph.D. see page 2627). Before registration each candidate must have a thesis plan accepted by the director of his research and by the professor in charge of graduate studies. Qualification for and permission to enter courses must be approved by (1) director of candidate's research, (2) course supervisor, and (3) professor in charge of graduate studies. In some cases a qualifying year will be required before admission as a candidate for a degree. Candidates for the Master's degree are required to pass satisfactory examinations in at least two out of four of the credit courses listed below, i.e., courses A, B, E, and G. Candidates for a Ph.D. degree are expected to pass all of these credit courses. Under exceptional circumstances, other courses or qualifications may be

substituted for credit at the discretion of the professor in charge of graduate studies. Attendance of at least one year at courses C, D, F, and I is expected of candidates for the Ph.D. Attendance at two at least of these four courses is expected of candidates for the M.Sc.

Others may attend any or all courses, at the discretion of the supervisors, without registration in the Graduate School. Registration is obligatory if graduate credit is to be given.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

A. SEMINAR IN NEUROANATOMY, M.N.I.

1. This course is given in combination with course Med.2A "Anatomy and Physiology of the Central Nervous System"—September to end of November.

   Additional graduate seminars will be held coordinated with Course B.

   Graduate students are expected to pass the same examination which is given in undergraduate course Med.2A, but with higher standing, and also to act as demonstrators. *Professor McNaughton*

2. Advanced Neuroanatomy for selected group; brain modelling, beginning in January; times to be arranged. *Professor McNaughton*

B. SEMINAR IN NEUROPHYSIOLOGY

This course is given in two parts, (1) lectures and examination together with undergraduate course Med.2A "Anatomy and Physiology of the Central Nervous System," and (2) weekly graduate seminars and demonstrations co-ordinated with Course A (4 months, beginning in December). Mondays, 4:30 to 6:00 p.m. *Professor Jasper*

C. COLLOQUIUM IN CLINICAL NEUROLOGY

1 hour weekly, clinics and lectures, Wednesdays, 5 p.m. M.N.I. (9 months).

Staff and Visiting Lecturers

D. SEIZURE MECHANISMS AND CEREBRAL LOCALIZATION: CLINICAL, ELECTROENCEPHALOGRAPHIC, AND ROENTGENOGRAPHIC CONFERENCE

M.N.I. 1½ hours weekly (9 months)

Professors Penfield, Rasmussen, Jasper, McNaughton and McRae

E. OUTLINE OF NEUROCHEMISTRY

Lectures and demonstrations, M.N.I. (2 months, beginning in April). Mondays, 4:30 to 6:00 p.m. *Professor Elliott*

F. CONFERENCE IN NEUROSURGICAL PATHOLOGY

Gross and microscopic demonstrations to be supplemented by collateral work (9 months). Fridays, 5 to 6 p.m. *Professor Cone*

G. DEMONSTRATIONS IN MEDICAL NEUROPATHOLOGY

1 hour weekly (9 months); time to be arranged.

Graduate credit is given for either:

(a) Acting for a period of 6 months as neuropathological fellow in the laboratory of surgical neuropathology. Arrangements should be made well in advance with Dr. Cone.

(b) Acting for a period of 6 months as neuropathological fellow in the laboratory of medical neuropathology. Arrangements should be made well in advance

(c) Passing written and practical examination in neuropathology.

H. CLINICAL NEUROPATHOLOGICAL CONFERENCE

1 hour, every other Thursday, 5:00 p.m. (9 months).

I. SEMINAR IN NEUROLOGICAL RADIOLOGY

1. Didactic lectures (3 months, beginning in September). Mondays 4:30 to 6:00 p.m.

2. Colloquium, 1 hour weekly (9 months), Mondays, 9:00 a.m.

Professor McRae

DEPARTMENT OF NUTRITION

(Macdonald College)

Professor	E. W. CRAMPTON, *Chairman*
Associate Professor	L. E. LLOYD
Assistant Professor	FLORENCE A. FARMER

Adequate laboratory and library facilities are available for research in a number of branches of Applied Nutrition. The particular research problem which may be undertaken will depend in part on whether the candidate holds a B.Sc., B.Sc.(Agr.), or B.Sc.(H.Ec.) degree. Ordinarily graduates in Agriculture associate themselves with problems related to the nutrition of farm animals, while graduates in Household Science usually undertake projects applicable to human nutrition.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE

A. EXPERIMENTAL TECHNIQUE. Design and conduct of nutritional studies involving experimental animals or subjects; statistical analysis and the interpretation of data from such studies; preparation of technical reports of nutrition research. This course includes lectures on specific topics

and the actual conduct and interpretation of one or more research projects, one of which will form the basis of the thesis presented toward the degree sought.

In addition to completion of course A above and the submission of an acceptable thesis, candidates for the Master of Science degree in Nutrition must register for and complete Biochemistry 45, Department of Biochemistry, in Montreal. Students must also attend and participate in Department seminars.

Home Economics graduates may, by special arrangement, also elect advanced work in the School of Household Science.

In individual cases, cognate courses may be added to the above requirements on the advice of the director of research.

DEPARTMENT OF PARASITOLOGY

(Macdonald College)

Professor	T. W. M. CAMERON, *Chairman*
Associate Professor	DONALD FAIRBAIRN
Assistant Professors	R. P. HARPUR
	L. K. WHITTEN
Lecturer	E. MEEROVITCH

Candidates for both the M.Sc. and Ph.D. are required to possess the equivalent of an honours degree in biological science or a degree in veterinary or human medicine. Their curricula should have included general invertebrate Zoology (including Entomology), Organic Chemistry, and Biochemistry; elementary Physiology is also desirable.

Adequate laboratory and library facilities are available at the Institute of Parasitology for the courses listed below and for research.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE

Courses A, B, and C are required for this degree in addition to a thesis, the subject to be selected by the candidate with the approval of the Department.

A, B, and C comprise the main courses, but further courses may be chosen, depending on the research problem selected and the candidate's previous training.

COURSES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates must possess the equivalent of the M.Sc. (Parasitology), McGill. Candidates may (with the approval of the Department) study

cognate subjects (such as Nutrition, Biochemistry, Medical Entomology, etc.). Such course work must be completed before the commencement of the final year of study.

A. A SYSTEMATIC STUDY OF THE ANIMAL PARASITES OF MAN, DOMESTIC, AND ECONOMIC ANIMALS

5 hours. *Professor Cameron*

B. PRACTICAL PARASITOLOGY

12 hours. *Professor Cameron and Lecturer*

C. FIELD WORK AND SEMINARS. Parasitological surveys. Collections in the field. Methods of control. *Staff*

DEPARTMENT OF PATHOLOGY

Professor	_____ *Chairman*
Associate Professors	G. C. McMILLAN
	J. E. PRITCHARD
	DOUGLAS WAUGH
Assistant Professor	A. C. RITCHIE

The Department offers adequate laboratory and library facilities in the Pathological Institute for morphological or experimental research and for the courses listed below leading to the degrees of Master of Science and Doctor of Philosophy in Pathology.

QUALIFICATION FOR ADMISSION

Candidates for graduate degrees in Pathology must hold the degree of Doctor of Medicine or its equivalent and must have attained high standing in the courses leading to this degree, especially in the preclinical scientific subjects.

Candidates whose previous graduate training in Pathology is judged to be inadequate, will be required to spend a qualifying year of work in the Department before proceeding to a graduate degree.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

A. RECENT ADVANCES IN PATHOLOGY

Lectures on selected subjects in Pathology. *Professor* _____ *and Staff*

B. COLLOQUIUM. Demonstration and discussion of current surgical and autopsy material from the routine pathological services of the Pathological Institute.

2 hours throughout the session. *Professor* _____ *and Staff*

C. CONFERENCES. Conferences will be held at regular intervals with graduate students for the purpose of guiding their reading and investigative work and for the discussion of special problems arising from their research.

D. COGNATE SUBJECTS. Each student will be required to take certain courses in cognate subjects, the selection of which will depend upon the student's previous training and on the character of the research problem to be undertaken.

Any candidate for a graduate degree may be required to attend the undergraduate course in General Pathology and pass a comprehensive examination in this subject.

A candidate for the degree of Master of Science must take courses A, B, and C, and at least one cognate course. The remainder of his time is to be devoted to morphological or experimental research. The quality of the student's investigative work as embodied in his thesis will be the main consideration in recommending him for this degree.

For the degree of Doctor of Philosophy the candidate must take courses A, B, and C, throughout each year of study in addition to his research. Any cognate subjects required must be completed before the end of the second year.

The quality of the research work as embodied in the Ph.D. thesis will be the main consideration in the award of this degree.

DEPARTMENT OF PHARMACOLOGY

Professor — K. I. MELVILLE, *Chairman*

Assistant Professors — B. G. BENFEY, L. E. HOKIN

Adequate laboratory facilities are available for the courses listed below and for research.

QUALIFICATIONS FOR ADMISSION

Candidates for higher degrees in Pharmacology must hold a M.D. or B.Sc. degree, and must have attained a high standing in the courses in Pharmacology 1A and 1B, as given to medical students at McGill (or equivalent courses elsewhere). Candidates with a B.Sc. degree and with suitable preparation in Biochemistry and Physiology, may be admitted to these undergraduate medical courses, during their qualifying year. On application to the Chairman of the Department, a limited number of undergraduates pursuing the Honours B.Sc. curriculum in Biochemistry

or Physiology, or with otherwise suitable preparation, may be admitted to these prerequisite courses in their Fourth year. See the Announcement of the Faculty of Medicine.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE

2A. ADVANCED PHARMACOLOGY

1 lecture per week. This course deals with biological assays, actions of drugs on cellular mechanisms and relationships between chemical structure and pharmacological action. *Professor Melville and Staff*

2B. COLLOQUIUM

1 hour fortnightly, dealing with problems related to the research interests of the graduate students and staff.

COURSES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

3A. RECENT ADVANCES IN PHARMACOLOGY

1 hour weekly. *Professor Melville and Staff*

3B SEMINAR

1 hour fortnightly during the year.

For each of the higher degrees, candidates may also be required to take courses in cognate subjects, as necessary.

The main interests of the Department at present concern various problems of cardiovascular pharmacology, actions of drugs affecting the autonomic nervous system and the pharmacology of posterior lobe pituitary extract.

DEPARTMENT OF PHILOSOPHY

Professors	T. G. HENDERSON, *Chairman*
	R. KLIBANSKY
	J. W. MILLER
Associate Professor	CECIL CURRIE
Assistant Professor	ALASTAIR MCKINNON
Sessional Lecturers	R. S. MCCALL
	J. D. ROSS

COURSES FOR THE DEGREE OF MASTER OF ARTS

*400. MORAL AND POLITICAL PHILOSOPHY. 2 hours.

First term: Advanced Ethics. *Professor Miller*

Second term: Philosophy of Politics. *Professor Klibansky*

* May also be taken by honours undergraduates.

*410. PROBLEMS OF LOGIC AND METAPHYSICS. 2 hours.

First term: Logic, Epistemology and Metaphysics. *Professor Klibansky*

Second term: The Metaphysics of Whitehead. *Professor Henderson*

*420 THE PHILOSOPHY OF KANT

2 hours. *Professor Currie*

*440. SEMINAR IN PHILOSOPHY I. 2 hours.

1957-1958. Issues in Contemporary Philosophy.

Reading: *to be announced.*

The Staff

*450. SEMINAR IN PHILOSOPHY II. 2 hours.

The Philosophy of History. *Professor Klibansky*

(*Not given in 1957-58.*)

Seminar courses will be offered in the special fields in which candidates are studying for their degrees.

Before entering upon his course of graduate studies, the student must have devoted two full years to Philosophy, and his competence in the subject should embrace the following:

(1) A general knowledge of the history of Greek philosophy and of modern philosophy.

(2) A systematic knowledge of the main philosophical disciplines: logic, ethics, epistemology, and metaphysics.

(3) A special knowledge of at least three of the great European thinkers.

Applicants for graduate study may be required to submit to an examination in order to determine their competence as above defined.

In special cases students may take relevant courses offered by the Institute of Islamic Studies.

DEPARTMENT OF PHYSICS

Professors

G. A. WOONTON, *Chairman*
J. S. FOSTER
J. S. MARSHALL

Associate Professors

R. E. BELL
K. L. S. GUNN
W. M. MARTIN
ANNA I. MCPHERSON
E. R. POUNDER
F. R. TERROUX
H. G. I. WATSON

*May also be taken by honours undergraduates.

Assistant Professor	W. F. Hitschfeld
Lecturers	M. L. De Angelis
	C. R. Crowell
	T. W. R. East
	E. J. Stansbury
	W. M. Telford
Research Associates	M. P. Langleben
	E. M. Little
	J. F. Mathison
	A. L. Thompson

Adequate laboratory and library facilities are available for the courses listed below and for research in any of the main branches of physics. Equipment for investigations in nuclear physics, electron physics, meteorological physics, ice physics, electromagnetic radiation, electrical measurements, spectroscopy, heat, and geophysics have been specially developed. An electron microscope and X-Ray Diffraction apparatus are available for collaboration in regard to problems in Chemistry and Biology. A well-equipped Radiation Laboratory for nuclear physics provides space for staff and over twenty graduate students. The hundred Mev McGill Synchro-cyclotron is housed in this laboratory. The Eaton Electronics Laboratory provides facilities for research and graduate training in the various branches of electron physics and in it there is also accommodation for over twenty graduate students, in addition to staff. The Macdonald Physics Laboratory continues to provide facilities and space for research by staff and by another group of from ten to fifteen graduate students. Upon request, the Secretary of the Department will provide prospective graduate students with a pamphlet on the Physics Department.

With the approval of the Chairman of this Department, qualified graduate students in physics may apply to take some of their required courses, and to undertake research, at Macdonald College, the remainder of their courses being taken at McGill University in Montreal. For the Ph.D. in Meteorology, see under the Department of Geography.

COURSES AVAILABLE WHEN PHYSICS IS CHOSEN AS A COGNATE SUBJECT

Courses 33, 34, 36, 41, 42, 43, 44b, 48 are undergraduate honours courses prerequisite to graduate work in Physics; but they are open to graduate students (1) choosing Physics as a cognate subject, or (2) completing their entrance qualifications for graduate work in Physics.

33. Electronic circuits and instruments (Half course). Theory and application of electronic devices with emphasis on the instruments used in scientific research.

1 hour; laboratory (33L), 2 hours. *Professor Bell*

Reference Books: Cruft Laboratory Staff, Electronic Circuits and Tubes (McGraw-Hill); Theory and Application of Electron Tubes (McGraw-Hill); Reich Valley and Wallman, Vacuum Tube Amplifiers (McGraw-Hill); Chance et al, Waveforms (McGraw-Hill).

34. HEAT AND THERMODYNAMICS. Thermodynamic systems and variables. The zeroth, first and second laws. The thermodynamics of: heat engines; two-phase systems, including a statement of the third law; thermoelectricity; Joule-Thomson effect; thermionic emission; thermal radiation. Kinetic theory of gases, introduction to statistical mechanics.

2 hours per week. *Professor Hitschfeld*

Text: Sears, Introduction to Heat, Thermodynamics, Kinetic Theory and Statistical Mechanics (Addison-Wesley).

References: Zemansky, Heat and Thermodynamics (McGraw-Hill); Hoare, Textbook of Thermodynamics (Longmans Green); Sir James Jeans, Kinetic Theory of Gases (Cambridge University Press), Worthing and Halliday, Heat (Wiley).

36. ADVANCED LIGHT. The essentials of geometrical and physical optics with advanced laboratory work. Electromagnetic theory, interference, diffraction, polarization, simple spectrum analysis, determination of fine structure of spectral lines, Zeeman effect, theory and use of optical apparatus (e.g., glass and quartz spectrographs, Lummer plates, interferometers, and polarimeters).

First term: 2 hours; Second term: 1 hour; Laboratory (36L): 3 hours (session). *Professor McPherson*

Reference books: Morgan, Introduction to Geometrical and Physical Optics (McGraw-Hill); Robertson, Physical Optics (Van Nostrand); Wood, Physical Optics (Macmillan); Jenkins and White, Fundamentals of Optics, (McGraw-Hill); Hardy and Perrin, The Principles of Optics (McGraw-Hill).

41. MATHEMATICAL PHYSICS. Vibration problems, eigenfunctions and eigenvalues, sound waves, scattering problems. Fourier transforms and application to problems of heat conduction and diffusion. Introduction to statistical mechanics and wave mechanics.

3 hours. *Professor P. R. Wallace*

Reference books: Margenau and Murphy, The Mathematics of Physics and Chemistry (McGraw-Hill); Coulson, Waves (Oliver and Boyd); Lindsay, Concepts and Methods of Theoretical Physics (Van Nostrand); Menzel, Mathematical Physics (Prentice-Hall); Joos, Theoretical Physics (Blackie); Sommerfeld, Partial Differential Equations (Academic Press); Born, Atomic Physics (Blackie).

42. ELECTROMAGNETIC THEORY (Half course). Field theory; electrostatics; Laplace's equation; dielectrics; magnetic fields of currents; magnetic materials; electromagnetic induction and Maxwell's equations; electromagnetic waves and energy flow; scalar and vector potentials. Application of these fundamental ideas is made to some of the following topics: skin effect; propagation of waves in conducting media; propagation of guided waves; the electromagnetic foundation of the optical laws of reflection and refraction; diffraction; radiation from antennae.

First term: 2 hours; second term: 1 hour. *Professor Woonton*

Textbook: Slater and Frank, Electromagnetism (McGraw-Hill).

Reference book: Ramo and Whinnery, Fields and Waves in Modern Radio (Wiley).

43. ATOMIC PHYSICS. Atoms, molecules and quanta; optical spectroscopy and classification of spectral lines; thermal radiation and the origin of the quantum theory; the nuclear atom and the Bohr theory of the hydrogen spectrum; Bohr-Sommerfeld quantization; further details of atomic spectra, the vector model, Zeeman effect; the periodic table; X-rays. The advent of quantum mechanics, the uncertainty principle, the exclusion principle; the Schroedinger equation and some applications. Molecular spectra; microwave spectroscopy. Some current topics in atomic physics.

2 hours. *Professor Martin*

3 hours Laboratory (43L) per week. *Dr. Telford*

NOTE: *The first half of this course, 43a, may be taken as a half course.*

Reference books: Peaslee, Elements of Atomic Physics (Prentice-Hall); Richtmeyer and Kennard, Introduction to Modern Physics (McGraw-Hill); Sawyer, Experimental Spectroscopy (Prentice-Hall); Herzberg, Atomic Spectra and Atomic Structure (Dover); Slater, Modern Physics (McGraw-Hill).

44b. RADIOACTIVITY (Half course). The phenomena of radioactive disintegration and the laws of transformations of successive products. The nature and properties of the radiations; methods of detection and of measurement. Mechanisms of absorption and scattering. Neutrons, positrons and the constitution of nuclei. Methods of producing artificial disintegrations and their products. Introduction to nuclear physics.

Second term: 2 hours. Laboratory, second term, 3 hours (held with 43L). *Professor Terroux*

Reference books: Rutherford, Chadwick, and Ellis, Radiations from Radioactive Substances (C.U.P.); Hevesy and Paneth, A Manual of Radioactivity (C.U.P.); Lapp and Andrews, Nuclear Radiation Physics (Prentice-Hall); Cork, Radioactivity and Nuclear Physics (Van Nostrand);

Semat, Introduction to Atomic and Nuclear Physics (Rinehart); Kaplan, Nuclear Physics (Addison-Wesley).

47a. APPLIED GEOPHYSICS (Half course). An introduction to geophysical methods of prospecting and of investigating subsurface structure. The theories, the uses, and the limitations of various magnetic, electrical, gravitational, and seismic methods are explained and compared. The practical operation of the instruments is reviewed, and actual field results are obtained and analysed. When possible, students will be given some practical experience in the field. Laboratory facilities are available.

First term: 2 hours. *Professor Watson*

Texts: Eve and Keys, Applied Geophysics, 4th ed. (Cambridge Univ. Press); Dobrin, Introduction to Geophysical Prospecting (McGraw-Hill).

Reference books: Heiland, Geophysical Exploration (Prentice-Hall); Jakosky, Exploration Geophysics (Trija Publishing Co.).

48. ELECTRICAL MEASUREMENTS. D-C. instruments and measurements, complete galvanometer theory, instrument calibration; A-C. circuit theory, operational methods, applications; measurements at power, audio, and radio frequencies; measurements with Lecher wires; construction and testing of simple electrical devices; absolute measurements.

First term: 1 hour. Second term: 2 hours. Laboratory: 3 hours (session). *Professor Watson and Mr. deAngelis*

Texts: Stout, Basic Electrical Measurements (Prentice-Hall); Harris, Electrical Measurements (Wiley).

Reference Books: Law, Electrical Measurements (McGraw-Hill); Hague, Alternating Current Bridge Methods (Pitman, London); Harnwell, Principles of Electricity and Electromagnetism (McGraw-Hill); Campbell and Childs, The Measurement of Inductance, Capacitance, and Frequency (Macmillan).

COURSES FOR STUDENTS PROCEEDING TO THE DEGREES OF M.A., M.Sc., OR Ph.D. IN PHYSICS

52. CLOUD PHYSICS. The development and precipitation of clouds; their study by radar and radio.

1 hour. *Professor Marshall*

General References: Johnson, Physical Meteorology (Technology Press); Marshall, Hitschfeld and Gunn, contribution in Advances in Geophysics, vol. II (Academic Press).

62. QUANTUM MECHANICS (Mathematics 662). Introduction to the ideas and methods of quantum theory, with illustrations from the simpler applications in atomic and nuclear physics.

2 hours. *Professor Pounder*

Note: Students proceeding to a higher degree in Mathematics are given an additional hour per week. This may be attended by any student taking the course.

Textbooks: Schiff, Introductory Quantum Mechanics (McGraw-Hill); Bohm, Quantum Theory (Prentice-Hall).

63. ADVANCED ELECTRICITY AND MAGNETISM. Advanced theory and problems concerning: Electrostatics—images, transformations, coefficients, properties of dielectrics. Current electricity—conduction in infinite solids, circuit theory, loci, non-linear elements, transients, applications of Heaviside's operational methods, Laplace transforms, determinants and matrices; power machinery and transformers. Electronic devices and circuits. Conduction in gases, associated devices and circuits. Magnetic effects and circuits. Elementary electromechanics; servomechanism fundamentals.

2 hours. *Professor Watson*

Textbooks: Harnwell, Principles of Electricity and Electromagnetism (McGraw-Hill); Lauer, Lesnick and Matson, Servomechanism Fundamentals (McGraw-Hill).

Reference books: Pender and McIlwain, Electrical Engineers' Handbook, Vol. V (Wiley); Carter, Electrical Transients (C.U.P.); Priesman, Graphical Constructions for Vacuum Tube Circuits (McGraw-Hill); Lee, Graphical Analysis of A-C Circuits (Medaugh, Johns Hopkins); Terman, Radio Engineers' Handbook (McGraw-Hill); Terman, Radio Engineering (McGraw-Hill); Reich, Theory and Application of Electron Tubes (McGraw-Hill); Nixon, Principles of Automatic Controls (Prentice-Hall).

64. THERMODYNAMICS. Starting from a review of the foundations of thermodynamics according to Carathéodory, the relation of thermodynamics to statistical mechanics is developed. Thermostatistics is then applied to problems in information theory, and to provide an introduction to the quantum theory. Thermodynamics of irreversible processes. Radiation: theory and applications in the atmosphere.

First term: 2 hours. *Professor Hitschfeld*

General references: Chandrasekhar, Stellar Structure (Chicago U.P.); Hercus, Thermodynamics and Statistical Mechanics (Melbourne U.P.); Landé, Foundations of Quantum Theory (Yale U.P.); Bergmann, Heat and Quanta (Prentice-Hall); De Groot, Thermodynamics of Irreversible Processes (Interscience Publishers, New York); Johnson, Physical Meteorology (Technology Press); papers by Brillouin.

65. STATISTICAL MECHANICS AND KINETIC THEORY OF MATTER (Mathematics 665). A course in classical and quantum statistical mechanics with selected applications; statistical theories of the gaseous, liquid, and solid states.

Reference books: Mayer and Mayer, Statistical Mechanics (Wiley); Lindsay, Physical Statistics (Wiley); Fowler, Statistical Mechanics (C.U.P.); Schrödinger, Statistical Thermodynamics (C.U.P.); Rice, Statistical Mechanics (Constable, London); Kennard, Kinetic Theory of Gases (McGraw-Hill); Loeb, Kinetic Theory of Gases (McGraw-Hill).

2 hours. *Professor R. T. Sharp*

Note: Course 65 will be given in alternate sessions, 1957-58, etc.

66. (a) ELECTROMAGNETIC THEORY AND (b) PHYSICAL ELECTRONICS. Transmission lines; wave guides; loaded lines and guides; retarded potentials; Hertz vectors; Huygen's principle formulated in scalar and in vector form; equivalent solution of diffraction and radiation problems by current sheets; application of these fundamentals to the calculation of microwave radiators.

Semi-quantitative treatment of the theory of solids; thermionic and photo-electric emission; the physics of semi-conductors and applications. The propagation of electron beams; the interaction of electron beams with static and alternating electro-magnetic fields, beam type microwave tubes.

2 hours. *Professor Woonton*

Textbooks: Stratton, Electromagnetic Theory (McGraw-Hill); Slater, Quantum Theory of Matter (McGraw-Hill); Slater, Microwave Electronics (McGraw-Hill).

Reference Books: Schelkunoff, Electromagnetic Waves (Van Nostrand); Hume-Rothery, Atomic Theory for Students of Metallurgy (Institute of Metals, London); Shockley, Electrons and holes in Semi-Conductors Van Nostrand; Spangenberg, Vacuum Tubes (McGraw-Hill).

67. SEMINAR, NUCLEAR PHYSICS. Experimental nuclear physics from advanced undergraduate level to selected topics in current research.

2 hours. *Professor Foster*

68. SEMINAR, GENERAL PHYSICS. This seminar, in which students are required to take an active part, will cover the range of topics in which those in attendance may be specializing.

2 hours. *Professor Marshall*

69. SEMINAR, PHYSICAL ELECTRONICS. Experimental physical electronics from advanced undergraduate level to selected topics in current research.

2 hours. *Professor Woonton*

*70. ADVANCED STATICS, DYNAMICS, HYDRODYNAMICS, AND SOUND.

2 hours.

Textbook: Lamb, Higher Mechanics (C.U.P.).

Reference books: Lamb, Dynamical Theory of Sound (Arnold); Bateman, Dryden and Murnaghan, Hydrodynamics (N.R.C., U.S.A.); Goldstein, Fluid Dynamics (Clarendon).

71. ADVANCED GEOPHYSICS (APPLIED). Selected topics as enumerated in prerequisite course 47a (Arts and Science Announcement) are given more advanced mathematical and physical treatment. Supplementary theory, problems and analysis of field results are added. A laboratory is run concurrently whereby the various methods are demonstrated qualitatively and quantitatively. Facilities are available for some research work in Geophysical problems. Arrangements for practical experience in the field will be made where possible.

2 hours. *Professor Watson*

Textbooks: Eve and Keys, Applied Geophysics (C.U.P.); Dobrin, Milton B., Introduction to Geophysical Prospecting (McGraw-Hill 1952); Jakosky, J. J., Exploration Geophysics (Trija Publishing Co. 1950); Heiland, Geographical Exploration (Prentice-Hall).

Note: This course is designed primarily for candidates for the degree in Mineral Exploration as described on page 2694.

75A, 75B, 75C. These are the reference numbers for the first three *Preliminary Ph.D. Examinations*, namely the *General Paper* (75A), the *Problem Paper* (75B), and the *Preliminary Oral* (75C).

76. Reference number of the *Special Paper* of the Preliminary Examinations. This paper covers the specific fields of Physics bearing on the research of the candidate.

81, 82, 83. RESEARCH. These are the reference numbers for registration of research requirements for M.Sc. and Ph.D. students. The respective numbers refer to the research work conducted in the minimum three years of progress towards the Ph.D. degree, as noted below.

A suitable selection of the above courses may be made by qualified students when Physics is taken as a partial or a cognate subject.

Requirements for Master's Degree and First Year Ph.D.: (a) Research 81, and M.Sc. thesis thereon. (b) Physics 62; (c) Two other courses to be chosen with the approval of the Supervisor of the student's research and the Chairman of the Department.

*Not offered in 1957-58.

Second Year Ph.D.: (a) Research 82. (b) Preliminary Examinations in December. (c) Seminar 67, 68, or 69. One additional course in Physics, Mathematics, or cognate subject may be permitted, or required, with the approval of the Supervisor of the student's research, and of the Chairman.

Third Year Ph.D.: Completion of research 83, and Ph.D. thesis thereon. Final Oral. One course, examination optional, is also required.

For Ph.D. language requirements see page 2629.

Attendance at the Physical Society, seminars, and other scientific meetings, and the presentation of papers, form an important element in the training of graduate students

DEPARTMENT OF PHYSICS

(Macdonald College)

Professor	WILLIAM ROWLES, *Chairman*
Associate Professor	W. F. OLIVER
Lecturer	D. M. FRASER

The courses below may form part of the required courses for graduate students in Physics (see page 2729), or may be taken by students in other departments as a cognate subject.

COURSES AVAILABLE TO GRADUATE STUDENTS

A. ADVANCED BIOPHYSICS
2 hours, second term. *Professor Rowles*
(*Given in 1957-58.*)

B. THEORY OF PROBABILITY
2 hours, second term. *Professor Oliver*
(*Given in 1958-59.*)

DEPARTMENT OF PHYSIOLOGY 57/58

Professors	F. C. MACINTOSH, *Chairman*
	A. S. V. BURGEN
Associate Professors	B. DELISLE BURNS
	H. GARCIA-AROCHA
Assistant Professors	SIMON DWORKIN
	PAUL SEKELJ
	KATHLEEN G. TERROUX

Lecturers A. L. JOHNSON
G. C. SALMOIRAGHI
P. B. STEWART

Candidates who as undergraduates have satisfactorily completed the Honours Course in Physiology (including six full courses in Physiology) may present themselves for examination for the M.Sc. degree at the end of one year's graduate work in the Department. Others will usually require a qualifying year. Candidates for the Ph.D. degree must pass a general examination in Physiology, but will be judged principally by the ability they display in research. Candidates for either degree are expected to attend the graduate courses listed below, and may be required also to pass certain advanced undergraduate courses in Physiology or related subjects.

The main research interests of the Department are at present the chemical and electrical behaviour of the nervous system and of secretory tissues, the release of physiologically active substances from tissues, the physiology of serous cavities and the development of physical apparatus for medical and physiological research.

ADVANCED UNDERGRADUATE COURSES

41. ADVANCED GENERAL PHYSIOLOGY

3 hours lecture and 8 hours laboratory. (First term)

42. ADVANCED MAMMALIAN PHYSIOLOGY

3 hours lecture and 8 hours laboratory. (Second term)

43a. PHYSIOLOGICAL INSTRUMENTATION

2 hours lecture and laboratory. (First term)

43b. SELECTED TOPICS IN PHYSIOLOGY

1 hour lecture, laboratory and seminar. (Second term)

GRADUATE COURSES

61. LECTURES ON SELECTED ADVANCED TOPICS. The subject matter varies from year to year.

1 hour.

62. PHYSIOLOGICAL COLLOQUIUM

1 hour.

DEPARTMENT OF PLANT PATHOLOGY

(Macdonald College)

Professor	J. G. COULSON, *Chairman*
Assistant Professors	E. O. CALLEN
	O. A. OLSEN
	R. L. PELLETIER
Research Associate	N. COLOTELO

Adequate laboratory and library facilities are available for the courses listed below and for research.

Candidates must have completed satisfactory undergraduate courses in Plant Morphology, Physiology, Taxonomy, Histology, and Cytology. Specialists in Plant Pathology should possess a general knowledge of the fundamental practices in Agronomy and Horticulture.

COURSES FOR THE DEGREES OF MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

61. HISTORY OF PLANT PATHOLOGY

1 lecture for 1 term. Extra reading required.

Textbook: Whetzel, History of Phytopathology (Saunders).

62. ADVANCED MYCOLOGY

A general course in Systematic Mycology is a prerequisite.
2 lectures and 2 laboratory periods. *Professor Callen*

Textbooks: Wolf and Wolf, Fungi vol. II (Wiley); Bessey, Morphology and Taxonomy of the Fungi (Blakiston); Alexopoulos, Introductory Mycology (Wiley).

63. ADVANCED PLANT PATHOLOGY

2 lectures and 2 laboratory periods. *Professors Coulson and Pelletier*

Textbooks: Heald, Manual of Plant Diseases (McGraw-Hill); Butler and Jones, Plant Pathology (Macmillan).

64. PRINCIPLES OF PLANT PATHOLOGY

2 lectures and 3 laboratory periods. *Professor Coulson*

Textbooks: Gaümann, Principles of Plant Infection (Crosby Lockwood & Son); Lilly and Barnett, Physiology of the Fungi (McGraw-Hill).

65. PLANT PHYSIOLOGY (Course 61 or 63—Department of Botany).

66. SEMINAR. A course entailing reading, discussion, appreciation and criticism of research articles, monographs, etc.

1 period. *Professor Coulson and Staff*

Candidates for the Master's degree and first year Ph.D. students must satisfy the requirements of course 66 and two from 62, 63, 64, and 65.

Second year Ph.D. students are required to take course 66 and all other courses listed above which were not taken during the previous year.

Third year Ph.D. students devote most of their time to research and the writing of a thesis. A candidate may be held responsible for a course in a cognate subject bearing upon his research.

The Ph.D. degree in Plant Pathology is offered in close association with the Department of Botany. The preliminary oral examination is conducted jointly by both Departments. The research and thesis must be in the field of Plant Pathology.

DEPARTMENT OF POULTRY HUSBANDRY

(Macdonald College)

Professor W. A. MAW, *Chairman*

Associate Professor NIKOLAI NIKOLAICZUK

Specialization in poultry husbandry in undergraduate training is preferred. Other candidates should have a background in biological chemistry or genetics where specialization is desired in poultry nutrition or poultry genetics respectively.

COURSES FOR THE DEGREE OF MASTER OF SCIENCE

A. ADVANCED POULTRY NUTRITION

Candidates for the M.Sc. in Poultry Husbandry (Nutrition) will take course A and at least two of the following: Agronomy 60 (Experimentation), Biochemistry 32 (McGill: Endocrinology), Biochemistry 45 (McGill: Oxidation and Metabolism).

3 hours, session.

B. ADVANCED POULTRY BREEDING

Arrangements are made to have a limited number of candidates register in the Department of Genetics for the required course work. The thesis problem can be conducted in the Department of Poultry Husbandry. The Departments are jointly responsible for such candidates.

3 hours, session.

DEPARTMENT OF PSYCHIATRY

Professors — D. Ewen Cameron, *Chairman*; A. E. Moll

Associate Professors — R. A. Cleghorn; R. B. Malmo; M. Prados; W. Clifford M. Scott; Baruch Silverman; Taylor Statten; J. S. Tyhurst; E. D. Wittkower

Assistant Professors — Saul Albert; Carlo Bos; T. E. Dancey; V. A. Kral; H. E. Lehmann; A. W. MacLeod; Geo. E. Reed; M. Saffran; C. Shagass; T. L. Sourkes

COURSES FOR THE DEGREE OF MASTER OF SCIENCE IN PSYCHIATRY

Admission is restricted to candidates who hold an M.D. with good standing from an approved institution, and have adequate postgraduate experience in clinical psychiatry.

Adequate library and laboratory facilities are available in the Department of Psychiatry (Allan Memorial Institute) for the courses listed below and for research.

A. ADVANCED PSYCHOTHERAPEUTICS
1 hour. *Professor Cameron and Staff*

B. ADVANCED PSYCHODYNAMICS
1 hour. *Professors Cameron, Prados and Scott and Staff*

C. COLLOQUIUM ON CLINICAL PSYCHIATRY
1 hour.

D. COGNATE SUBJECTS:
Each student will be required to take certain courses in cognate subjects, such as Psychology, Sociology, Endocrinology, and Neurology. These will be determined upon the basis of the special field of psychiatry in which the candidate's research work is being carried out.

DEPARTMENT OF PSYCHOLOGY

Professors	D. O. Hebb, *Chairman*
	G. A. Ferguson
Associate Professors	Dalbir Bindra
	R. B. Malmo
Assistant Professors	W. Heron
	W. E. Lambert
	P. M. Milner
	M. S. Rabinovitch
Research Associates	B. K. Doane
	S. Fillenbaum
	Helen Mahut

APPLIED PSYCHOLOGY CENTRE

Professor	E. C. Webster, *Director*
Assistant Professors	W. N. McBain
	E. G. Poser
Lecturers	G. Dufresne
	A. H. Goldsman
	Blossom Wigdor

Graduate work in the Department of Psychology follows two main lines: experimental-theoretical, including comparative, physiological, and social psychology, as well as statistical method, leading to M.A., M.Sc., and Ph.D. degrees; and applied psychology, chiefly in the industrial, clinical, and guidance fields, leading to M.Sc.(Appl.) and Ph.D. degrees.

No distinction in training is made between M.A. and M.Sc. degrees; which of these the candidate enrols for is determined by his Bachelor's degree (*i.e.*, B.A. is followed by M.A., B.Sc. by M.Sc.).

Admission to graduate work will depend on the estimate made by members of the department of the student's aptitude for original contributions to knowledge, or for professional contribution in the applied field. It will not depend merely on high marks made in course work, nor on the student's having taken a large number of courses in psychology. In addition to a biologically-oriented introductory course the student should have four full courses (each the equivalent of six semester-hours), including experimental, systematic (or theoretical) psychology, and some knowledge of the historical development of modern ideas. Some knowledge of statistical method as applied to psychological problems (equivalent to an introductory course in this field) is essential.

Equally necessary are a knowledge of elementary physiology and of physics or chemistry, some comprehension of philosophical thought, and of modern developments in other social sciences. All students, no matter

what kind of specialization is ultimately aimed at, are expected to have the same core of undergraduate training, equivalent to the Honours degree at McGill. The student who has not sufficient preparation, either in psychology or in the related subjects referred to above, but has shown promise of aptitude for advanced original work, can be accepted after the completion of a qualifying year.

Application should be made by April 1. Candidates must submit with their applications the results of the Miller Analogies Test. Those who are not at a centre where the Miller Analogies can be given should make arrangements for a special examination.

COURSES

51. METHODS OF TEST CONSTRUCTION
Methods of measurement, reliability, validity, item analysis, etc.
1½ hours.

52. APPRAISAL OF INTELLIGENCE
Use of Stanford-Binet and Wechsler tests primarily.
1½ hours.

55. APPRAISAL OF PERSONALITY
Review of current methods of personality assessment.
3 hours.

56. EDUCATIONAL AND VOCATIONAL GUIDANCE
3 hours.

57. ABNORMAL PSYCHOLOGY
3 hours.

58. ADVANCED EDUCATIONAL PSYCHOLOGY
3 hours.

59. ADVANCED PERSONALITY APPRAISAL
3 hours.

61. ADVANCED STATISTICS. A didactic advanced course.
3 hours.

62. PSYCHOLOGICAL THEORY. Seminar designed as an introduction to other courses listed below.
3 hours.

63. SEMINAR IN ADVANCED EXPERIMENTAL PSYCHOLOGY
2 hours.

64. SEMINAR IN COMPARATIVE AND PHYSIOLOGICAL PSYCHOLOGY
2 hours.

65. SEMINAR IN DEVELOPMENTAL PSYCHOLOGY
2 hours.

66. SEMINAR IN SOCIAL PSYCHOLOGY
3 hours.

67. SEMINAR IN INDUSTRIAL PSYCHOLOGY
3 hours.

68. SEMINAR IN MEASUREMENT AND QUANTITATIVE ANALYSIS
3 hours.

69. SEMINAR IN PERSONALITY
2 hours.

70. CONFERENCES ON THE THESIS. Required of all candidates for the M.A. or M.Sc. degree, with course standing to be assigned on conclusion of the comprehensive examination.

REQUIREMENTS FOR M.A. AND M.Sc. DEGREES

Candidates must demonstrate a sound knowledge of modern theory, of its historical development, and of the logic of statistical methods as used in psychological experiment. They will be expected to have an understanding of the main lines of current work in other than their own particular field of specialization.

All candidates must take courses 61, 62, and 70, and in addition any other course specified by the Department. The primary concern of the candidate, however, is his thesis. For this the exploratory work, at least, should get under way early in the year. Following presentation of the thesis, a comprehensive written or oral examination will be held which, in conjunction with the thesis itself, will determine the candidate's final standing for the degree.

REQUIREMENTS FOR THE Ph.D. DEGREE

The candidate for the Ph.D. degree must demonstrate a broad scholarship, mastery of current theoretical issues in psychology and their historical development, and a detailed knowledge of his special field. Preliminary examinations will be held at two stages: one at the time of the Master's degree or immediately afterward, and one at the conclusion of the following year. These examinations may be written or oral, or both, at the discretion of the Department. They will cover three fields, as

follows: (a) modern theoretical issues and history; (b) "experimental" (normal human adult) psychology and statistical methods; and (c) one from the following: comparative and physiological psychology; developmental psychology; social psychology; personality; advanced statistics; industrial psychology; clinical psychology.

REQUIREMENTS FOR THE M.Sc.(Appl.) DEGREE

The degree of M.Sc.(Appl.) in industrial, guidance, or clinical psychology is awarded to candidates who achieve a high standard of scholarship in psychology and who have demonstrated an aptitude for the professional application of psychological knowledge. The minimum time necessary to attain the degree is two years.

Individuals following the industrial and guidance sequences will normally concentrate in the first year on class work carrying five courses and the second year will be spent in full time practical work under approved supervision. Individuals in the clinical programme will spread courses over two years with the remainder of the time being given to practical clinical work under psychological supervision.

Award of the degree M.Sc.(Appl.) will be determined by the student's standing in course examinations, by his standing in a comprehensive examination or examinations, and by the report of his supervisors concerning his fitness for professional work in psychology.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

Associate Professor	W. A. Westley, *Chairman*
Assistant Professors	Frederick Elkin
	Jacob Fried
	Philip Garigue
	Aileen D. Ross
	David N. Solomon
Research Assistants	Rosalynd Baylin
	Colette Carisse

The Department of Sociology and Anthropology offers work towards the M.A. degree both to the student who has taken Honours in sociology or anthropology within the university and to qualified students from other universities who have the B.A. degree.

SOCIOLOGY

The undergraduate courses prerequisite to graduate work are: 310a, 311b, 340a, 380a, 421b, 430a, 432a, 433b, and any two of the following: 300, 411b, 440b, 450a, and 460b. These courses are available to students

who are completing the entrance requirements for graduate work. In addition, courses in the fields of Criminology, Collective Behavior, Mass Communications, and Minority Groups are available to graduate students by special arrangement. A student transferring to McGill would be expected to have attained the equivalent of satisfactory Honours standing (a minimum of 65% in each course) in the prerequisite courses. For further information regarding the undergraduate courses in Sociology, consult the Announcement of the Faculty of Arts and Science.

To obtain the M.A. degree the student is required to register for three graduate seminars (Sociology 610, 710, 720). However, the primary concern of the candidate is his thesis. For this, the exploratory work at least should be undertaken early in the graduate year. Following the presentation of the thesis, a comprehensive oral examination will be held which, in conjunction with the thesis itself, will determine the candidate's final standing for the degree.

The Department encourages research in following areas:

(1) Social stratification and mobility;

(2) The relationship of Ethnic and other Minority Groups;

(3) Public Opinion and the Media of Mass Communications;

(4) Collective Action and Social Movements;

(5) Education and Socialization;

(6) Specific Institutions and Professions such as the family, the hospital, the Medical Profession, etc.

(7) Industrial Institutions and Business Organizations.

Students trained elsewhere who lack the entrance requirements for graduate work at McGill may fulfil these by registering for a Qualifying year.

COURSES OFFERED

300a. THE COMMUNITY. Third or Fourth year (Half course). Rise of modern urbanism; human ecology and theories of urban growth; community studies on the North American continent.

3 hours, first term. *Professor Ross*

310a. PRE-INDUSTRIAL SOCIETIES. Third year (Half course). The comparative study of social organization among pre-industrial societies. The course will deal principally with the analysis of social systems as these appear in cultures at various levels of complexity.

3 hours, first term. *Professor Garigue*

311b. COMPLEX SOCIETIES. Third year (Half course). Social systems of modern, complex, industrial societies; scientific, economic, political, religious, health, and other institutional structures; voluntary associations; the role of small groups in institutions; bureaucratization of institutions.

3 hours, second term. *Professor Solomon*

340a. THE FAMILY. Third year (Half course). The structure and function of the family and its relation to other community institutions; interpersonal relationships within the family; the family and social change; family disorganization and reorganization.

3 hours, first term.

380a. SOCIOLOGY OF THE CHILD. Third year (Half course). The social development of the individual from infancy to adulthood, emphasizing theories of human nature and socialization; childhood and adolescent roles; the influence of culture, the family, and peer groups.

3 hours, first term. *Professor Elkin*

411b. SOCIAL STRATIFICATION. Fourth year (Half course). The theory of caste and class divisions in modern society; the structure of class groups in the United States and Canada; the criteria of rank and the symbols associated with rank; the relationship between occupation, education, and class position; problems of upward and downward mobility.

3 hours, first term. *Professor Ross*

421b. SOCIAL PSYCHOLOGY. Fourth year (Half course). Personality development; the origin of the self; the relationship between language and behavior; the emergence of social behavior; the analysis of social action.

3 hours, second term. *Professor Westley*

430a. HISTORY OF SOCIOLOGY. Fourth year (Half course). Social thought and historical developments which led to the development of sociology as a separate discipline; early sociologists in Europe and America; recent trends in areas of interest and research methodology.

3 hours, first term. *Professor Elkin*

432a. TECHNIQUES OF SOCIOLOGICAL RESEARCH I. Fourth year (Half course). The formulation of research projects; use of documents, census and other available data; collection of data through observation and interviewing; analysis of non-quantitative material.

3 hours, first term. *Professor Solomon*

Open to Fourth year Honours students, or by permission of the instructor.

433b. TECHNIQUES OF SOCIOLOGICAL RESEARCH II. Fourth year (Half course). Introduction to survey research: the selection of samples, construction of questionnaires and scales, analysis and interpretation of data.

3 hours, second term. *Professor Solomon*

Open to Fourth year Honours students or by permission of the instructor.

440b. POPULATION AND MIGRATION. Fourth year (Half course). Populations and their composition; age, sex, and language groupings, birth rates, death rates and population growth; the structure of the labour force and changes therein; international migration, domestic migration, and the forceful transfer of populations; migration policies. The major emphasis is on the Canadian scene.

3 hours, second term.

(*Not given in 1957-58.*)

450a. OCCUPATIONS AND PROFESSIONS. Fourth year (Half course). Historical development of specialized occupations and professions; occupational mobility; occupational choice; stages of careers; social control of relations with clients, customers, fellow workers, and other interested parties; professional and trade associations; work and the self.

3 hours, first term. *Professor Solomon*

460b. SOCIOLOGY OF INDUSTRIAL INSTITUTIONS. Fourth year (Half course). Industrial and other work institutions; the concept of bureaucracy; operation of bureaucracies; formal and informal organization of the work world; roles of managers, executives, foremen, and workers; the plant and the community; industry and society.

3 hours, second term. *Professor Solomon*

Note: Sociology 450a and Sociology 460b may be regarded as a sequence in the Sociology of work.

610. SOCIAL COMMUNICATIONS AND PERSONALITY (Full course). Seminar for advanced study in the theory of social communications and interaction; emphasis is placed on the development of the social self, and the socio-linguistic bases of human communication.

3 hours, both terms. *Professor Elkin*

710. THE SOCIAL DIVISION OF LABOR (Full course). A discussion of recent theory pertaining to social organization, largely concerned with the works of Durkheim, Weber, and contemporary American writers.

3 hours, both terms. *Professor Westley*

720. READING IN SOCIAL THEORY (Full course).

3 hours, both terms. *Staff*

ANTHROPOLOGY

The undergraduate courses prerequisite to graduate work are: Anthropology 323, 324, 470, 490b, Sociology 432a, 433b and any two of the following 321a, 322b, 325b. These courses are available to students who are completing the entrance requirements for graduate work. In addition, seminars on North American Indians and Eskimos, and on the social institutions of French Canada, are available to graduate students. A student transferring to McGill would be expected to have attained the equivalent of satisfactory Honours standing (a minimum of 65% in each course) in the prerequisite courses. For further information regarding the undergraduate courses in Anthropology, consult the Announcement of the Faculty of Arts and Science.

To obtain his M.A. degree the student is required to register for three graduate seminars. However, the primary concern of the candidate is his thesis. For this, the exploratory work, at least, should be undertaken early in the graduate year. Following the presentation of the thesis, a comprehensive oral examination will be held which, in conjunction with the thesis itself, will determine the candidate's final standing for the degree.

The Department encourages research in the following subjects:

(1) North American Indians and Eskimos.

(2) French Canada

Students trained elsewhere who lack the entrance requirements for graduate work at McGill may fulfil these by registering for a Qualifying year.

COURSES OFFERED

310a. PRE-INDUSTRIAL SOCIETIES. Third year (Half course). The comparative study of social organization among pre-industrial societies. This course will deal principally with the analysis of social systems as these appear in cultures at various levels of complexity.

3 hours, first term. *Professor Garigue*

311b. COMPLEX SOCIETIES. Third year (Half course). Identical with, and described under, Sociology 311b.

3 hours, second term.

321a. ETHNOLOGY OF OCEANIA (Half course). The native cultures of Melanesia, Micronesia, and Polynesia; racial and cultural origins; ethnographic accounts of representative societies.

3 hours, first term. *Professor Fried*

(*Not given in 1957-58.*)

322b. AFRICAN ETHNOLOGY (Half course). Description of the peoples and the cultures of Africa, south of the Sahara.

3 hours, second term. *Professor Garigue*

(*Not given in 1957-58.*)

323. NORTH AMERICAN INDIANS. Third or Fourth year (Full course). A study of the past and present Indian and Eskimo cultures of Canada and the United States.

3 hours. *Professor Fried*

324. THE DEVELOPMENT OF CULTURE. Third year (Full course). The study of the development of culture from prehistoric to modern times, based upon descriptions from palaeontological, archaeological, and ethnographic research. The course is designed to provide students with historical and comparative illustrations of cultural changes from fossil to contemporary man.

3 hours. *Professor Garigue*

325b. THE CULTURE AND SOCIAL ORGANIZATION OF FRENCH CANADA. Third or Fourth year (Half course). The description and analysis of the culture and social organization of French Canadians in the Province of Quebec and of French-speaking groups in North America.

3 hours, second term. *Professor Garigue*

420a. CULTURE AND PERSONALITY. Fourth year (Half course). The study of culture and personality with emphasis upon the cultural background; the process of socialization as it is revealed in a comparative study of non-western societies.

3 hours, first term. *Professor Fried*

470. SOCIAL ANTHROPOLOGY. Fourth year (Full course). A comparative study of social institutions and groups. The course will discuss kinship; the legitimation of authority and power; the function of religion, magic and witchcraft; and the formation of groups through the division of labour, property and economic reciprocity.

3 hours. *Professor Garigue*

471b. THEORIES AND METHODS OF ANTHROPOLOGY. Fourth year (Half course). The course will deal with the theoretical development in Anthropology. Topics discussed will include the relationship between specific types of theoretical analysis and methods of field research. The role of hypotheses and theoretical models will also receive attention.

3 hours, second term. *Professor Garigue*

(*Not given in 1957-58.*)

490b. CULTURAL THEORIES. Fourth year (Half course). An examination of the logical and functional integration of culture; determination of the primary institutionalized pattern and the basic values of the culture; structuring of patterns of socialization and social control, kinship extension and reciprocity, social and political dominance, and religion.

3 hours, second term. *Professor Fried*

620. ABORIGINAL POPULATIONS OF QUEBEC (Half course). The seminar will deal with problems in the historical reconstruction of Indian and Eskimo cultures and examine the present status of native populations in the province.

3 hours. *Professor Fried*

630. SOCIAL INSTITUTIONS OF FRENCH CANADA (Half course). A discussion of the main institutions characteristic of French Canada.

3 hours. *Professor Garigue*

DEPARTMENT OF ZOOLOGY

Professors	JOHN STANLEY, *Chairman* N. J. BERRILL
Associate Professors	M. J. DUNBAR H. R. SCOTT
Lecturer	JOAN MARSDEN
Special Lecturer (Professor of Parasitology and Director of the Institute of Parasitology at Macdonald College)	T. W. M. CAMERON

Graduate students are expected to take such courses, including cognate courses in other departments, as relate to their particular line of specialization, if not previously taken. Qualifying students may be required to take up to five full courses, others will take from two or three in their first year to none in their last year. Primary emphasis for both the M.Sc. and Ph.D. is placed upon research and thesis presentation.

Ph.D. candidates will be required to write a comprehensive examination lasting six hours in February of their penultimate year. Copies of past papers are available in the Department.

The Department specializes in work bearing on developmental theories, embryology, histology, limnology, biomathematics, marine and Arctic biology.

Excellent laboratory and library facilities are available for research, including constant temperature equipment. The Blacker and Wood Zoological Libraries comprise over 50,000 volumes.

Students are accepted on the basis of a good Honours degree from a Canadian or British University, or on the basis of first class standing with a major in the biological field from an American or other University. Students applying on the basis of an Honours degree in the General Honours in the Biological Sciences course offered at McGill University should have at least a high second class, and should understand that they may have to spend additional time in fortifying their knowledge of zoology.

324. ADVANCED INVERTEBRATE ZOOLOGY (*except* ARTHROPODA) (Full course). A study of the comparative anatomy, taxonomy, development, evolution, and economic importance of invertebrate animals other than the Phylum Arthropoda. Graduate students will be expected to do additional work and reading.

2 lectures and 3 hours laboratory per week, for 2 terms.

Professor Stanley

Textbooks: Borradaille, Eastham, Potts, *The Invertebrata* (Macmillan); Bullough, *Practical Invertebrate Anatomy* (Macmillan).

(*Offered in alternate years with Zoology 325 and 325L. Offered in the session 1957-58.*)

325. THE ARTHROPODA (Full course). A study of the comparative anatomy, taxonomy, development, evolution, and economic importance of animals of the Phylum Arthropoda. Graduate students will be expected to do additional work and reading. Students taking Zoology 325 must also take Zoology 325L, the laboratory course, and must take it in the same year as Zoology 325.

3 lectures per week, for 2 terms. *Professor Stanley*

Textbooks: Borradaille, Eastham, Potts, *The Invertebrata* (Macmillan); Bullough, *Practical Invertebrate Anatomy* (Macmillan).

(*Offered in alternate years with Zoology 324. Not offered in the session 1957-58.*)

325L. ARTHROPODA LABORATORY (Half course). The laboratory work of Zoology 325. It must be taken along with Zoology 325, in the same year. A laboratory outline is issued by the Department.

2 laboratory periods of 2 hours each, per week, for 2 terms.

Professor Stanley

(*Offered in alternate years with Zoology 324. Not offered in 1957-58.*)

431. HISTOLOGICAL TECHNIQUE (PRACTICE AND THEORY) (Full course). Training in the making of various types of histological preparations, discussion of the theories involved, and interpretation of the results obtained.

1 hour lecture and 6 hours laboratory per week for 2 terms.

Professor Scott

Textbook: Lillie, *Histopathological Technic and Practical Histochemistry* (Blakiston).

Prerequisite: Zoology 322a (Second class standing).

332. ANIMAL ECOLOGY (Full course). A study of the inter-relations between animals, groups of animals, and their environments. The zoogeography of terrestrial, marine and fresh water populations; the analysis of the physical environment in all three divisions of the biosphere; migrations, emigrations, and other movements of animals, and the numerical behaviour of populations. Ecology and Evolution. Graduate students will be expected to do additional work and reading.

3 lectures per week, 2 terms. *Professor Dunbar*

Textbook: Hesse, Allee and Schmidt, *Ecological Animal Geography* (Wiley).

433. COMPARATIVE NEUROLOGY AND DEVELOPMENT. A comparative study of the basic types of nervous system and general problems of biological organization and pattern.

2 hours lecture and 3 hours laboratory per week throughout the session.

Professor Berrill

Prerequisites: Zoology 221 or 322.

435. APPLIED BIOMATHEMATICS (Half course). A study of mathematical theories of growth and form, mathematics as applied to the growth of populations; host-parasite relations, relative growth, radio-active tracers, etc. Graduate students will be expected to do additional work and reading.

2 lectures per week, first term; 1 per week, second term.

Professor Stanley

Prerequisite: A working knowledge of the calculus.

Textbook: No set text.

337a. THE HISTORY OF BIOLOGY. A study of the development of scientific observation in biology, with emphasis on zoology, from the Sixth Century B.C. to the present day. The history of anatomy, comparative morphology, embryology, palaeontology, and ecology. Theories of the

relationships of animals, and parts of animals, and of their evolution. Philosophical history of biology. Biological expeditions. Graduate students will be expected to do additional work and reading.

3 lectures per week, first term. *Professor Dunbar*

Textbooks: Singer, *Short History of Biology* (H. K. Lewis); Nordenskiold, *History of Biology* (Tudor).

(*Offered in alternate years with Zoology 46a. Not offered in 1957-58.*)

343b. LIMNOLOGY (Half course). A study of the fresh water environment and its organisms. The classification of inland waters, physical and chemical characteristics of lakes, the plankton and nekton, cyclomorphosis, the benthos, productivity and developmental sequence in lakes, running water systems, special environments.

Second term: 3 lectures per week. Field trips if possible.

Dr. Marsden

Text: No set text.

345. PHYSIOLOGICAL ZOOLOGY (Full course). A functional study of diverse mechanisms which have been evolved in different types of animals to carry on such basic activities of life as nutrition, water balance, nitrogen excretion, respiration, locomotion, stimulus reception, nervous and endocrine co-ordination.

2 hours lectures and 3 hours laboratory per week throughout the session.

Dr. Marsden and Professor Scott

Prerequisites: Physiology 22, and (for 1957-58 only, Zoology 221, 324, 325 and 325L) any one of Zoology 221, 324, 325 plus 325L. (With permission, Physiology 22 may be taken concurrently.) After 1957-58, Zoology 211 or 221, and Physiology 22.

Textbook: No set text.

446a. SYSTEMATICS AND EVOLUTION OF VERTEBRATES (Half course). A study of the present systematics of the vertebrate classes, presented in terms of their past histories since the periods of their first appearance.

3 lectures per week, first term. *Professor Dunbar*

(*Offered in alternate years with Zoology 337a. Offered in 1957-58.*)

551. ARCTIC ZOOLOGICAL RESEARCH. A seminar course for graduate students designed to stimulate interest in zoological work and research in Arctic North America. The history of zoological work in the north, special

problems, conservation and development, field methods. Introduction to the literature.

1 hour per week throughout 2 terms. *Professor Dunbar*

Text: No set text—the whole literature is reviewed.

552. THE GROWTH OF POPULATIONS. A study of the works of Bailey, Crombie, Gause, Lotka, Malthus, Mendes, Nicholson, Salt, Stanley, Volterra, Weiner and others relative to mathematical theories of the growth of populations. A laboratory study of a population and analysis of the results.

Seminars, lectures and laboratory work equivalent to 2 hours lectures and 3 hours laboratory per week for 2 terms. *Professor Stanley*

Textbooks: No set text. Original papers are used.

Prerequisite: Zoology 435 and ready familiarity with calculus, differential equations, theory of equations, etc.

553. MARINE BIOLOGY. A study of the fundamentals of, and methods in, marine biology (including physical oceanography). An introduction to the literature.

1 hour per week for 2 terms. *Professors Berrill and Dunbar*

Text: No set text.

LIBRARIES

All resident graduate students have access to the Redpath Library, containing over 500,000 volumes. The building also houses a number of special collections, such as the Blacker Library of Zoology. The Libraries of Engineering and of Medicine are housed in the Engineering and Medical buildings; the latter includes much of the material for the medical sciences, and a separate room contains the Osler Library, devoted principally to medical history. There are special libraries for Commerce and Law and at Macdonald College. A number of departments maintain special libraries, of which the most extensive are in Chemistry, Geology, and Physics, grouped together in the Physical Sciences Centre. All of these collections may be consulted by resident graduate students, though the hours for reading and the conditions under which books may be consulted or borrowed are not the same in all cases.

McGill University

Montreal

Library School

1957-1958

McGill University

Montreal

Library School

1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture and School of Household Science)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. For limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

Library School

The Library School is under the administrative jurisdiction of the Faculty of Arts and Science.

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

F. Cyril James, Chevalier de la Légion d'Honneur, Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

D. L. Thomson, Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal and Dean, Faculty of Graduate Studies and Research*

H. N. Fieldhouse, M.A., F.R.S.C. — *Dean, Faculty of Arts and Science*

William Bentley, C.G.A., F.C.I.S., R.I.A. — *Bursar and Secretary of the Board of Governors*

Colin M. McDougall, D.S.O., B.A. — *Registrar*

G. A. Grimson, B.Com. — *Comptroller*

D. C. Bain, B.A. — *Chief Accountant*

LIBRARY SCHOOL STAFF*

Vernon Ross, B.S. in L.S. (Columbia), M.A. — *Director of the Library School and Associate Professor of Library Science*

Virginia Murray, M.A. (Columbia), B.L.S. — *Assistant Professor*

Effie Astbury, M.L.S. (Toronto), B.A., B.L.S. — *Assistant Professor*

Violet Coughlin (Mrs. Errol), B.Sc., B.L.S. — *Lecturer*

Beryl L. Anderson, M.A. (Dalhousie), B.L.S. — *Lecturer*

Richard Pennington, B.A. (Birmingham), Lib.Dipl. (Lond.) — *Librarian, McGill University, and Sessional Lecturer*

Albertine Kennedy (Mrs. Cyril), B.A. (Toronto) — *Secretary*

**Degrees received from McGill University carry no institutional designation and are placed after those received elsewhere.*

CALENDAR

1957

September 16, Monday. Students register in the Library School.

September 17, Tuesday. Lectures begin in the Library School.

December 21, Saturday. Christmas Holidays begin.

1958

January 6, Monday. Lectures resume in the Library School.

January 17, Friday. First term ends in the Library School.

January 20, Monday, to January 24, Friday. Examinations in the Library School.

January 27, Monday. Second term begins in the Library School.

April 4, Friday, to April 7, Monday. Easter Vacation.

May 2, Friday. Lectures end in the Library School.

May 5, Monday, to May 13, Tuesday. Examinations in Library School.

May 28, Wednesday. Convocation.

Dates to be announced: Library School trip. Field work.

Special dates for M.L.S. *students:* see page 3017.

McGill University

LIBRARY SCHOOL

GENERAL

McGill University was the first institution in Canada to provide library training and the first to grant the degree in library science. Short summer courses were given from 1904-1927, the first regular sessional course being in 1927-28. The school was accredited by the Board of Education for Librarianship of the American Library Association and the B.L.S. (5th year) degree was first conferred in May, 1931. In 1957 the School was reaccredited as a graduate library school by the Committee on Accreditation of the American Library Association.

The M.L.S. (6th year) degree course was offered for the first time in 1956-57. For description see page 3016.

University graduates are trained for professional library work of all kinds—in university and college, public, school, children's, and special libraries. The school is situated in a large city in which are to be found all types of library and it is a part of a university with a tradition of sound scholarship. It occupies rooms in the main University Library building and its students have access to the stacks of the University Library.

DEGREE OF BACHELOR OF LIBRARY SCIENCE

Candidates who successfully complete all the required work of the School are entitled to receive the degree of Bachelor of Library Science (B.L.S.) at the May Convocation and to wear the regulation black Bachelor's gown and a Bachelor's hood of black, lined with burnt orange silk and trimmed with white rabbit fur. Academic costume for graduation may be rented at the Registrar's Office.

REQUIREMENTS FOR ADMISSION

1. Applicants for admission to the course leading to the degree of Bachelor of Library Science must have a Bachelor's degree from an approved University or College. This degree must represent four years of work beyond the McGill Matriculation requirement or its equivalent.

Applicants must present an official transcript of their University or College record.

The School will take into account the character of the applicant's undergraduate studies and his, or her, suitability for library work. Courses in the humanities, sciences, and social studies are recommended as forming a suitable basis for subsequent training in library work, and it is expected that the applicant's academic grades shall have been better than average. Students whose undergraduate courses are unsuitable as a preliminary to Library School work may be required to undertake some supplementary preparation.

2. Applicants over thirty-five years of age will be considered for admission only in exceptional cases. They are at a disadvantage when applying for a position and usually find intensive study difficult. Exceptions may be made for those having special educational qualifications or several years of experience in library work.

3. As no one with *serious physical defects, personality difficulties, or ill health* can readily obtain a position in library service, such persons should not seek admission to the School.

4. Applicants for admission must fill in the School Application Form and attach thereto a recent photograph and an advance fee of $10.00 which will be credited to the student's fee account. Should the application be rejected, this advance payment will be refunded. No refund will be made in the case of a student who withdraws after the application has been accepted.

5. Students are advised to learn to use a typewriter before entering, since the greater part of the work done must be in typewritten form.

6. Applicants without previous experience are strongly advised to work in a library before taking the course.

EMPLOYMENT

While the School does not guarantee positions to graduates and will not recommend any with less than a "B" average, it makes an effort to help its graduates find suitable positions. Complete records are kept in the Library School files, and letters of reference are sent to prospective employers on request. Transcripts of the academic record may be obtained by applying to the Registrar's Office.

Any graduate of an approved university who also has successfully completed the degree of Bachelor of Library Science at McGill University will be entitled without further examination to the Specialist's certificate which is issued to Librarians serving in the Protestant High Schools of the Province of Quebec.

MEDICAL EXAMINATION

1. HEALTH CERTIFICATE

Students when applying must present a certificate of health on a form which may be obtained from the School and which should be filled in and signed by a physician.

2. VACCINATION

All students entering the University are required by the Provincial Board of Health to present a certificate, or other satisfactory evidence, of successful vaccination within seven years, or of insusceptibility to vaccine within five years, failing which they must immediately be vaccinated in a manner satisfactory to the Medical Examiner.

3. MEDICAL EXAMINATION

To promote their physical welfare, all men and women in the University are required to be medically examined at the beginning of the session. The hours of examination are announced at the time of Registration.

REGISTRATION AND ATTENDANCE

REGISTRATION

Students in the Library School are required to present themselves at the office of the Library School on Monday, September 16, preceding the commencement of lectures, in order to furnish the information necessary for the University records.

ATTENDANCE

1. Students are required to attend at least seven eighths of the total number of lectures or laboratory periods in any one course.

2. Excuses for absence on account of illness or domestic affliction are dealt with only by the Director of the School. Medical certificates covering absences must be presented by the student immediately after his return.

3. Those whose unexcused absences exceed one eighth of the total number of lectures in a course are not permitted to take the regular examination in that course; and those whose unexcused absences have exceeded one fourth of the total number of lectures must repeat the work in that course for credit.

EXAMINATIONS AND MARKS

Final marks are based on the term's work and the examinations. The pass mark is C.

No student will be permitted to sit for the examinations unless he, or she, has fulfilled the requirements of the course to the satisfaction of the Instructor and the Director. Students whose progress is unsatisfactory may be asked to withdraw from the School.

FEES AND EXPENSES

1. FEES

The University reserves the right to make changes without notice in the published scale of fees if, in the opinion of the Board of Governors, circumstances so require. Fees are not refundable, except under special conditions as described in the regulations concerning remission of fees in the General Information Pamphlet.

(*a*) *Regular students*

Fees are due and payable at the Accounting Office on or before September 17th. If paid in two instalments the second shall be paid on or before January 15th. Instalment fee $5.00. A late fee of $2.00 is charged for payment after the specified dates, and no days of grace are allowed.

Fee for the Library Course $450.00

By instalments:

First instalment 200.00

Second instalment 255.00

These fees include registration, instruction, (including Library Visits) the use of the Library, health service, athletics, students' activities, and graduation diploma.

Fee for each supplemental examination 10.00

(*b*) *Partial students*

Information concerning fees for such courses may be obtained from the Secretary of the School.

(*c*) *Arrears*

Immediately after September 17th (or January 15th in the case of students who pay by instalments), the Chief Accountant will send to the Director of the School a list of registered students who have not paid their fees. Such students cannot be re-admitted to classes until a satisfactory arrangement has been made with the Chief Accountant.

2. TEXTBOOKS AND MATERIALS

Students should allow approximately $25 for text books. These are available from the University Book Store and the Library School. Blank forms, cataloguing cards, and other library supplies needed during the session may be obtained from the Secretary of the School.

3. LIBRARY VISITS

A week's visit, under the direction of members of the Faculty, to libraries in other Canadian cities is a required part of the Library course. (See 1*a* above.)

4. BOARD AND RESIDENCE

Information regarding accommodation at the University may be found in the enclosed booklet of General Information.

5. CLUBS AND SOCIETIES

Students are encouraged to take advantage of the privileges offered to members of the Canadian Library Association, the Quebec Library Association, the Special Libraries Association, and the American Library Association. Women students of the School are eligible for membership in the University Women's Club, 3492 Peel Street, in the immediate neighbourhood of the School.

SCHOLARSHIPS

1. Two annual scholarships of $400 each in honour of *Dr. G. R. Lomer*, former Director of the Library School.

2. The *Ethelwyn M. Crossley Scholarship Fund*, founded in honour of a former student of the school. Women students are given preference.

3. The *Elizabeth G. Hall Scholarship Fund*, founded in memory of a former member of the McGill University Library staff.

These awards are made, after due investigation and recommendation, to deserving students who require financial assistance to take the course. Application should be made to the Director of the School.

A complete list of scholarships and bursaries and the regulations governing the various loan funds are given in the Announcement of Scholarships, Bursaries, and Loan Funds which may be obtained from the Registrar's Office.

PARTIAL STUDENTS

Qualified students who are not candidates for the degree may be admitted to individual courses as partial students. Before registration such students must satisfy the staff of the School of their ability to follow the courses selected, and they must fulfil all requirements of classroom work and tests prescribed for regular students of these courses.

SPECIAL LECTURES

The students have the benefit of occasional special lectures from visiting librarians or local specialists. The programme for a recent session included lectures by: Dr. Wm. Kaye Lamb, National Librarian and Dominion Archivist; Dr. Andrew D. Osborn, Associate Librarian, Harvard University; Dr. W. W. Francis, Librarian, Osler Library of Medicine; Mr. Angus Mowat, Director of Public Library Service, Province of Ontario; Mr. Neal Harlow, Librarian, University of British Columbia; Dr. S. Rothstein, Assistant Librarian, University of British Columbia; Mr. Deane Kent, Assistant Director, London Public Library; Mr. John Gray, Managing Director, The Macmillan Company of Canada; Mr. R. A. Kennedy, Assistant Librarian, National Research Council, Ottawa; Mr. Wm. Daggar, Defence Research Board Library; Miss Mary Price, Librarian, Bell Telephone Company of Canada; Miss Emily Keeley, Librarian, Industrial Cellulose Research Ltd.; Miss Kathleen Jenkins, Librarian, Westmount Public Library; Miss Frances Dumaresq, Library Consultant to the Protestant School Board of Greater Montreal; Miss Elizabeth Morton, Executive Secretary, Canadian Library Association.

DESCRIPTION OF COURSES

The courses provided by the School are based upon the librarian's relation to: the building in which his library is housed, the books, periodicals, and other materials in his charge, the readers whom he serves, and the staff with whom he works. In teaching the various subjects of the curriculum, every effort is made to relate them to library work as a whole and to develop a dynamic, rather than mechanical, point of view with regard to the present practice and the future possibilities of the profession.

Whenever possible, the past history, the practice of today, and the probable future development of library activities are related, and students are encouraged to assume an attitude that is constructively critical and forward-looking, rather than one that is merely imitative, conventional, and retrospective. The work of the School is grouped under the following headings for convenience of instruction: 1. Organization and administration of libraries. 2. Acquisition and care of library materials. 3. Selection and use of library materials. 4. Field work.

All courses are required except those marked elective (see below).

ELECTIVES

Special courses given in the second term are: Public Library Services; Children's and School Libraries; College and University Libraries; Special Libraries; Cataloguing and Classification; Government Documents. Three of these must be elected.

COURSE VALUES

Courses are of various lengths. The point value of each is shown in parentheses followed by the number of the term in which it is given.

1. ORGANIZATION AND ADMINISTRATION OF LIBRARIES

This group of courses is planned to give a general picture of the ideals, functions, and successful operation of libraries of different types. It is concerned with the place of the library in the community, the duties and opportunities of the librarian, and his relation to the governing authorities, staff, and readers. These courses form both framework and background for the more detailed instruction in technique and specialized services.

1. THE LIBRARY PROFESSION (2) I (1) II *Professor Ross*

Intended to provide professional background, this course includes the historical development of library work; some famous libraries and librarians; a history of printing in Canada and the development of Canadian libraries; a brief survey of work in various types of library; an introduction to the literature of the profession; a study of the work of library associations; consideration of the training, qualifications and ethics of the librarian; efficient methods of work organization; personnel problems and public relations.

2. HISTORICAL BIBLIOGRAPHY (1) II *Mr. Pennington*

This course deals with the history of the manuscript and printed book in Europe from classical times to the present. It includes lectures on palaeography, the transmission of texts, the invention and development of printing, and the technical processes of book making, including book illustration.

3. LIBRARY BUILDINGS AND EQUIPMENT (1) II *Professor Ross*

In this course the following subjects are discussed: principles in library planning; reading of architect's plans; the planning of various types of library; heating, ventilation, and lighting; furniture and equipment. The lectures are illustrated by specially prepared diagrams. Students are required to work out simple planning problems illustrating topics considered in the course.

4. LIBRARY ORGANIZATION (2) I *Mrs. Coughlin*

Deals with such elements of library administration as may be applicable to any type of library. Special consideration is given to public libraries, e.g. city government, board meetings, budget, standards, statistics, and library legislation.

5. PUBLIC LIBRARY SERVICES (2) II ELECTIVE *Mrs. Coughlin*

Consideration is given to the public library's responsibility to its readers, the measurement and evaluation of its services, the interpretation to the user by means of annual reports and other library publications, exhibits and displays, and the use of mass media. Detailed study is made of the social structure of the community; the relation of the library to the agencies of adult education; readers' advisory work and discussion groups; and the use of records, films, radio, and television. The organization and operation of county and regional library services in Canada and other countries is included.

6. COLLEGE AND UNIVERSITY LIBRARIES (2) II ELECTIVE *Professor Astbury*

The problems of organization and growth are considered, including service to undergraduates, research students, and staff; departmental libraries; special collections and reading rooms; teaching the use of the library; the allocation of funds; the use of micro-materials and such technical processes as differ from those in public and other libraries.

7. SPECIAL LIBRARIES (2) II ELECTIVE *Miss Anderson*

This course is designed to present the purpose and point of view of the special library and to discuss the adaptation of general library techniques to its needs. Special attention is paid to the organization and administration of libraries in business and industry. Research methods and sources of information peculiar to selected fields are surveyed and discussed.

8. LIBRARY WORK WITH CHILDREN (2) II ELECTIVE *Mrs. Coughlin*

This course shows the adaptations necessary in cataloguing and classification, reference work, book selection, and general administration to serve the needs of libraries for children and young people. Children's literature from the historical point of view is reviewed; modern illustrators and modern authors are discussed. Special problems of the school library are considered. The lectures are supplemented by story telling, and by practical work in, and visits to, children's libraries.

II. ACQUISITION AND CARE OF LIBRARY MATERIALS

The purpose of these courses is to train the future librarian in the principles of wise, economical, and adequate provision of books, periodicals, pamphlets, films, phonograph records, etc., for library use, and the best modern technique to be applied in recording them and in making them available to the public.

9. TECHNICAL PROCESSES (2) I *Professor Astbury*

Acquisitions. Deals with the acquisition of books, periodicals and other materials, by purchase, gift and exchange. Trade bibliographies are examined in detail, and sources for obtaining both new and second-hand books are discussed. The various routines followed and records kept by the acquisitions department are studied.

Circulation. Charging systems used by libraries of various types are studied in detail, with some consideration of the history of circulation procedures and also recent innovations. Other routines and regulations, statistics, shelf work, and the administration of the circulation department are discussed.

Binding. A brief survey of methods of binding, repair and preservation of library materials; the organization, routines and records of the library binding department with special reference to the collating of periodicals and other material.

10. CATALOGUING AND CLASSIFICATION (4) I *Professor Murray*

The principles and purpose of classification and cataloguing are studied with a view to their application in libraries of different types and sizes.

11. CATALOGUING AND CLASSIFICATION (3) II *Professor Murray*

The history and theory of classification are considered and a comparative study is made of the Dewey Decimal, Universal Decimal, Cutter Expansive, Library of Congress, Bliss Bibliographic, and other classification schemes now in use. The problems of subject analysis and of recataloguing and reclassification are considered, as well as the care of specialized materials and the organization and administration of the cataloguing department.

III. SELECTION AND USE OF LIBRARY MATERIALS

The needs of the reader are explained and provided for by a carefully planned study of the subject content of books as well as the adaptation of non-book materials to practical use in libraries of various types.

12. SELECTION OF BOOKS AND OTHER MATERIALS (3) I (2) II *Mrs. Coughlin*

This course deals with methods of selecting books, films, records, etc. for various types of libraries, communities, and readers. Representative books of all classes are examined for their literary value as well as their physical make-up, and various editions, translations, and series are compared.

The student becomes familiar with the general and special printed aids to selection; the characteristics and specialties of publishing houses; and the problems of authorship, copyright, and censorship.

Training is given in book evaluation, annotation, and written and oral book reviewing.

13. REFERENCE MATERIALS AND METHODS (3) I (4) II *Professor Astbury*

The purpose of the course is to give a practical understanding of efficient reference service, the administration of a reference department and a critical knowledge of reference materials.

In the first term general basic reference books are studied. Printed bibliographies of all kinds are considered and practice is given in dealing with questions requiring bibliographical research. The second term is devoted to the reference materials of the humanities, social sciences, biological sciences and physical sciences. Particular attention is paid to the special approach needed for work in each field. Every student is required to make an intensive study of the literature of one subject.

14. GOVERNMENT PUBLICATIONS (2) II elective *Professors Ross and Murray*

Deals with Canadian, British, and United States publications; some attention also being given to foreign documents, and United Nations and UNESCO publications.

15. SERIALS

A brief sketch of the historical development of serials is given; study is made of the various types of serials published to-day, such as popular magazines, technical journals, house organs, and the publications of societies and institutions.

A systematic survey is made of problems in the selection and ordering of serials in English and foreign languages; checking and claiming; circulation, binding, and storage; exchange of duplicates and completing of sets.

This course will be given in the present session in conjunction with Book Selection, Cataloguing and other courses.

16. BIBLIOGRAPHY AND RESEARCH METHODS (1) I

Training is given in the preparation of a research paper and in the compilation of an annotated bibliography. Some attention is paid to indexing, abstracting and editorial practice.

IV. FIELD WORK

VISITS TO LOCAL LIBRARIES

The following libraries in Montreal are visited and many are used regularly by the students.

Public Libraries: Montreal Public Library and its branches; Westmount Public Library; Fraser Institute; Mechanics' Institute; St. Sulpice Library; Jewish Public Library.

Special Libraries: Divinity Hall Library; Osler Library (Medicine); Purvis Hall Library (Commerce); Montreal Museum of Fine Arts Library; also the libraries of Canadian Industries Ltd., Bell Telephone Company, Sun Life Assurance Company, Royal Bank of Canada, Shawinigan Water and Power Company, Aluminum Company of Canada, International Civil Aviation Organization, Canadian Broadcasting Corporation.

College and University Libraries: McGill University (Redpath) Library; Macdonald College Library; Sir George Williams College Library; Bibliothèque de l'Université de Montréal.

Children's Libraries: Montreal Children's Library; Westmount Public (Children's) Library; Notre Dame de Grace Children's Library; Montreal Public Library and its branches; the libraries of Montreal High School, Lachine High School, Westmount Intermediate School, and Commission des Ecoles Catholiques de Montréal.

LIBRARY VISITS TO OTHER CITIES

A week's visit to other cities in Canada, with a programme of conducted visits to libraries, is a required part of the course. This illustrates the practical application of subjects taught. Each student is required to prepare a report and to take part in class discussions on methods observed.

LIBRARY EXPERIENCE

Work under supervision in a library is required during the session, in order that the student may acquire some appreciation of library service as a whole under everyday conditions.

DEGREE OF MASTER OF LIBRARY SCIENCE

The candidate must hold the degree of Bachelor of Library Science, or an equivalent degree, from an accredited Library School approved by McGill University. This degree must represent a fifth year of academic study in which the candidate has obtained at least a B average. Competence to undertake graduate study must have been demonstrated and at least two years of professional library experience is required. He must show evidence of a reading knowledge of at least one language other than English before the degree is granted. The French language is recommended but another language may be accepted if appropriate to the work which the candidate intends to undertake. If courses taken previously by the candidate are considered inadequate for the graduate courses offered he may be required to undertake some additional courses in the Library School or elsewhere in the University.

A minimum of one full session or two half sessions of resident study at McGill University is required. Pass mark in each subject is 65 per cent.

Elective courses may not all be available in any one year. Inquiries should be made at the Library School office.

Each course is conducted on the seminar plan under the direction of a member of the Library School staff. In the session of 1956-57 specialists, who gave one or several seminars, included the following: Dr. Andrew Osborn, Associate Librarian, Harvard University; Mrs. Violet Cabeen, formerly United Nations Library, New York; Miss Marie Tremaine, Director of Bibliography, Arctic Institute of North America, Washington, D.C.; Dr. Mortimer Taube, President, Documentation Inc., Washington, D.C.; Dr. Wm. Kaye Lamb, National Librarian, Ottawa; Mr. R. M. Hamilton, Assistant Librarian of Parliament, Ottawa; Miss Edna Hunt, Assistant Librarian, National Research Council, Ottawa; Mr. Lachlan McRae, Defence Research Board, Ottawa; Professor H. N. Fieldhouse, Dean of Arts and Science, McGill University; Mr. J. J. Lefebvre, Chief Archivist, Superior Court, Montreal; Mrs. Isabelle Dobell, Assistant Curator, McCord Museum; Dr. Allana Reid Smith, specialist in Canadian history; Professor J. I. Cooper, History Department, McGill University; Dr. G. A. Ferguson, Psychology Department, McGill University; Dr. D. N. Solomon, Sociology Department, McGill University.

COURSES

Required

A. Thesis—3 copies when completed should be presented to the office of the Dean of Graduate Studies and Research on dates specified in the General Information Pamphlet.

B. Research methods in library science.

Elective (the equivalent of 2 full courses must be taken).

C. Canadiana; archival and historical materials, their care and use.

D. Documentation; the acquisition and retrieval of research material. (Half course.)

E. Government documents. (Half course.)

F. Serials. (Half course.)

G. Cataloguing and classification; problems and developments.

H. The library in the community; school, college and adult education work.

I. A special subject may be taken in another Department of the University provided that the candidate has the qualifications normally required for advanced work in that field. Special permission must first be obtained from the Dean, the Director of the School and the Chairman of the Department concerned.

Preliminary application should be made to the Director of the Library School before August 1st and formal application papers must be completed and received by the Dean of the Faculty of Graduate Studies and Research before September 10th.

FEES

One session full time study	$500.00
One session half time study	250.00
Late registration fee	5.00
Instalment fee	5.00

Payment may be made in two instalments in October and January.

These fees include registration, instruction, the use of the library, health service, athletics, students' activities, graduation diploma and library visits.

SPECIAL DATES

1957

September 26th, Thursday. Last day for receiving sessional registration forms in the Dean's Office, Faculty of Graduate Studies and Research.

September 30th, Monday. Lectures begin.

October 21st, Monday. Last day for registration at the Registrar's Office and for payment of fees.

1958

April 22nd, Tuesday. Last day of filing theses for Spring Convocation.

August 26th, Tuesday. Last day of filing theses for Fall Convocation.

McGill University

Montreal

School for Graduate Nurses

Beatty Memorial Hall

1957-1958

McGill University

Montreal

School for Graduate Nurses

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1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts, and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers)
French Summer School
Extension Courses

The Directory of Staff (University and Faculty administrative officers, standing committees, and officers of instruction)

The Calendar (available for distribution only to libraries and officials of certain institutions)

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School for Graduate Nurses

The School for Graduate Nurses is under the administrative jurisdiction of the Faculty of Medicine.

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, B.Com., M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. — *Principal*

David L. Thomson, B.Sc., M.A., Ph.D., LL.D., F.C.I.C., F.R.S.C. — *Vice-Principal*

Lloyd G. Stevenson, B.A., M.D. (Western), Ph.D. (Hopkins) — *Dean of the Faculty of Medicine*

Rae Chittick, B.S. (Columbia), M.A. (Stanford), M.P.H. (Harvard), LL.D. (Alberta), R.N. — *Director of the School for Graduate Nurses*

William Bentley, C.G.A., F.C.I.S., R.I.A. — *Bursar*

T. H. Matthews, M.A., LL.D. — *Registrar*

G. A. Grimson, B.Com. — *Comptroller*

ADVISORY COMMITTEE

Dean Lloyd G. Stevenson, *Chairman*

Miss Rae Chittick — Mrs. Alastair MacLeod

Miss Eileen C. Flanagan — Professor Frank C. MacIntosh

Professor William H. Hatcher — Miss Dora Parry

Miss Helene Lamont — Professor C. J. Tidmarsh

Professor R. P. Vivian

SCHOOL FOR GRADUATE NURSES OFFICE

BEATTY MEMORIAL HALL

1266 Pine Avenue West

Montreal 25, P.Q.

Telephone—MA 9181

STAFF OF SCHOOL FOR GRADUATE NURSES

RAE CHITTICK, B.S. (Columbia), M.A. (Stanford), M.P.H. (Harvard), LL.D. (Alberta), R.N. — *Director*

MOYRA ALLEN, M.A. (Chicago), B.N., R.N. — *Assistant Professor of Nursing*

ELIZABETH LOGAN, B.Sc. (Acadia), M.N. (Yale), R.N. — *Assistant Professor of Nursing*

ANN PEVERLEY, B.S. (Columbia), M.P.H. (Yale), R.N. — *Assistant Professor of Nursing*

ELEANOR HURD (MRS. G. T.), B.Sc. (Alberta), M.P.H. (Michigan), R.N. — *Assistant Professor of Nursing*

HELEN GEMEROY (MRS. G. A.), B.A. (Sir George Williams), Cert. S.G.N., R.N. — *Lecturer in Psychiatric Nursing*

LYDIA H. POPE — *Librarian*

OTHER OFFICERS OF INSTRUCTION IN THE SCHOOL

MARION BAIN (Mrs. D. C.), M.Sc. (Columbia), B.H.S. — *Assistant Professor of Health and Social Medicine*

MADELINE FLANDER, Cert. S.G.N., R.N. — *Lecturer in Paediatric Nursing*

EILEEN C. FLANAGAN, B.A., R.N. — *Director of Nursing, Montreal Neurological Institute*

DONALD S. FLEMING, D.P.H. (Tor.), B.A., M.D., C.M. — *Associate Professor of Health and Social Medicine*

HELENE LAMONT, B.N., R.N. — *Director of Nursing, Royal Victoria Hospital*

ISABEL MACLEOD (MRS. A. W.), B.Sc.(N) (Alta.), M.A. (Columbia), R.N. — *Director of Nursing, Montreal General Hospital*

A. W. MACLEOD, B.Sc., M.B., Ch.B., D.P.H. (Glasgow), Dip. Psych.Med., M.R.C.P. (London) — *Assistant Professor of Psychiatry and Lecturer in Health and Social Medicine*

CHARLES WILLIAM MACMILLAN, M.D., C.M., D.P.H. — *Associate Professor of Health and Social Medicine*

MARGARET E. NIX, B.A. (Man.), M.P.H. (Mich.), Ph.D. (Mich.) — *Assistant Professor of Health and Social Medicine*

DORA PARRY, R.N. *Director of Nursing, Montreal Children's Hospital*

GENEVA PURCELL, B.N., R.N.
Supervisor of Nursing, Royal Victoria-Montreal Maternity Hospital

SAM RABINOVITCH, Ph.D. (Purdue), M.A. *Assistant Professor of Psychology*

J. GILBERT TURNER, M.D., C.M., M.Sc., F.A.C.H.A.
Lecturer in Hospital Administration

R. P. VIVIAN, M.D. (Tor.) *Professor of Health and Social Medicine*

A. H. WESTBURY, Fellow of Institute of Hospital Administrators (Eng.), Fellow of Chartered Institute of Secretaries
Lecturer in Hospital Administration

GENERAL INFORMATION

The School for Graduate Nurses was established in 1920 to prepare well-qualified graduate nurses for positions of leadership in hospital and community nursing. The various programmes in administration, teaching, supervision and public health nursing have attracted graduate nurses from every province in Canada and from several foreign countries. In 1957, a new programme in basic nursing was introduced to prepare high school graduates for the many positions open to well-qualified nurses. This programme combines general education with professional courses over a period of five years from McGill Junior Matriculation and leads to the degree of Bachelor of Science in Nursing. Graduates of this programme are qualified for staff positions in public health agencies as well as in hospitals.

The School for Graduate Nurses, therefore, offers two types of programmes:

(1) Diploma and degree courses for graduate nurses. These courses are described on pages 3221 to 3225.

(2) A five-year course for high school graduates leading to the degree of B.Sc.(N.) This programme is described on pages 3209 and 3210.

PROGRAMMES FOR GRADUATE NURSES

The School offers programmes of study for graduate nurses in four main areas. These are as follows:

I: **Teaching and Supervision in Schools of Nursing:** Students selecting this field are prepared for positions as head nurses, ward supervisors, or classroom and clinical teachers. Students are given the

opportunity to select one of a number of fields for specialization. These are the Teaching of the Basic Sciences*, Medical-Surgical Nursing, Psychiatric Nursing, and Maternal and Child Health (these students do major work in either Obstetric or Paediatric Nursing).

II: **Public Health Nursing:** This programme is designed to prepare nurses for staff positions in public health organizations.

III: **Administration in Hospitals and Schools of Nursing:** This programme is open to experienced nurses who wish to qualify as directors of schools of nursing or directors of hospital nursing service.

IV: **Supervision and Administration in Public Health Agencies:** This programme prepares nurses with satisfactory experience to participate in supervision and administration in public health organizations.

COURSES LEADING TO A DIPLOMA

Students who successfully complete a programme of study in area I or II may be granted a diploma in the field of their specialization. The minimum entrance qualification to enrol in the diploma programme is McGill Junior Matriculation or its equivalent.

Of the ten papers required for McGill Junior Matriculation the compulsory subjects are English, History, Algebra or Advanced Arithmetic, and Chemistry or Biology. Chemistry and Biology should *both* be taken if possible. The other subjects of the examination are entirely optional. The general average for all papers must be at least 65%. (The equivalent of these papers taken in public examinations recognized by the University will be satisfactory.)

COURSES LEADING TO THE DEGREE OF BACHELOR OF NURSING

Students wishing to qualify for the degree of Bachelor of Nursing must first complete a programme of study in either area I or II which represents the first year of the work for the degree. These programmes are basic to the more advanced work in public health nursing, nursing education, and administration in hospitals and schools of nursing.

Entrance qualification for the degree programme is either McGill Junior Matriculation or McGill Senior Matriculation or their equivalents, but those students who enter with Junior Matriculation standing must complete three years of study before qualifying for the degree of Bachelor of Nursing. One year of this time will be spent in general education which must be comparable to that required to pass with satisfactory standing

*Open only to students in degree programme.

the appropriate papers in the McGill Senior School Certification Examinations. The subjects required are English, Chemistry, and any three of the following: History, Biology, French, Spanish, German, Latin, Mathematics, Physics.

PART-TIME STUDY

Nurses who live in or near Montreal may register as partial students in the regular day programme or in the evening classes offered through the Department of Extension of the University. By special arrangement a one-year programme may be extended over two years for students who are unable to attend full time.

PROGRAMME IN BASIC NURSING

This is a programme for high-school graduates who wish to prepare themselves for a career in nursing. The time necessary to complete the requirements is five years. Successful candidates are granted the degree of B.Sc.(N). The first year is devoted to academic courses with emphasis on the basic sciences. The following four years consist of both classroom instruction and clinical experience in the McGill teaching hospitals and in selected public health agencies in the city of Montreal. In the final year emphasis is placed on teaching methods and administrative skills.

Students may be admitted into the basic nursing programme after passing the ten required papers of the McGill Junior Certificate Examination, or their recognized equivalents, with an overall average of at least 65%. In the University's own examinations the following papers are required:

No. of Papers	Subject
2	English
1	General History
2	Modern Language
2	Elementary Algebra Elementary Geometry
1	One of the following: Biology; Botany; Chemistry; Physics
2	*Either* Latin *or* Spanish *or* French *or* German (if not already chosen) *or* any two of the following papers not already chosen: (a) Intermediate Algebra (b) Trigonometry (c) Biology *or* Botany (Biology and Botany may not both be chosen)

(d) Chemistry
(e) Geography
(f) Physics
(g) British History *or* Canadian History
(h) Music *or* Drawing (Music and Drawing may not both be chosen)

—
10 papers

The above papers are the normal requirements for admission, but students who do not have exactly these requirements may be admitted, provided their high school record is exceptionally good and they show evidence of preparation and ability to meet successfully the demands of the course.

RESOURCES AND FACILITIES

Courses in nursing education are provided in the School. Other courses are available through the Faculty of Arts and Science and the Faculty of Medicine (including the Department of Health and Social Medicine), as well as through other Schools and Departments within the University.

The School, administered by the Faculty of Medicine, is located in Beatty Memorial Hall, which provides classroom space, lunch facilities, and other amenities. An up-to-date professional library is maintained at the School under the direction of a full-time librarian. Students have access to other libraries in the University.

Excellent community facilities are available for the observation of nursing in all its branches and for practice in teaching, supervision, and administration in hospitals, schools of nursing, and public health nursing fields.

The resources of the following organizations are available: the Royal Victoria Hospital (including the Allan Memorial Psychiatric Institute, and the Royal Victoria-Montreal Maternity Hospital); the Montreal General Hospital; the Montreal Children's Hospital; the Royal Edward Laurentian Hospital (tuberculosis) with its clinics; the Verdun Protestant Hospital; the Queen Mary Veterans Hospital; the Montreal Neurological Institute of McGill; St. Mary's Hospital; and the Queen Elizabeth Hospital, as well as other hospitals in Montreal.

The official and voluntary health agencies of the city and also clinics (both public and private) afford ample opportunities for study and field

experience in the various aspects of community health. These resources include the Victorian Order of Nurses, the Child Health Association, the municipal health departments of Greater Montreal, hospital out-patient departments, industrial health services, the Mental Hygiene Institute, the Family Welfare Association, the Children's Service Centre, nursery schools and day nurseries, child guidance clinics, and other organizations concerned with the welfare of individuals and families.

ENTRANCE REQUIREMENTS

GRADUATE NURSES

All applicants must have completed the basic nursing course in an approved school of nursing, be registered in the province or country from which they come, and meet the requirements for the programme selected.

For admission to the diploma courses candidates must have passed in the required papers of the McGill Junior School Certificate Examination or their recognized equivalents (see page 3208). Candidates for a degree must have met the requirements of the First year in the Faculty of Arts and Science, or have passed in the required papers of the McGill Senior School Certificate Examinations or their recognized equivalents (see page 3208).

BASIC NURSING

High School Graduates who wish to enrol in the programme leading to the degree of B.Sc.(N) must have passed in the required papers of the McGill Junior School Certificate Examinations or their recognized equivalents (see page 3209).

TRANSFER OF CREDITS

Consideration will be given to transfer of credits for work completed in another university if an official transcript of the student's work is sent directly to the School by the officers of the institution in which the work was completed.

APPLICATION FOR ADMISSION

All applications must be made on forms which may be obtained from the School for Graduate Nurses, McGill University, and must include a photograph of passport size. Official transcripts from their School of Nursing may be submitted by graduate nurses.

REGISTRATION

All students will register at Beatty Hall between the hours of 9 a.m. and 4 p.m. as follows:

First Year

Students in the First year of the Graduate-Nurse Programme are required to complete a month of field work during September. Registration for them will take place on Thursday, August 29.

For First-year students in the Basic Programme registration will take place on Tuesday, September 17.

Upper Years

All other students will register on Wednesday, September 25.

EXAMINATIONS

Final examinations are held for first-term half courses in January, and for full courses and second-term half courses in April and May. Mid-term examinations for full courses may be held in January depending upon the instructor.

Results of examinations are recorded according to class, as follows: Class I, 80% to 100%; Class II, 65% to 79%; Class III, 50% to 64%.

A student who has failed in a final examination and has been given permission by the Director of the School to write a supplemental examination, must write this supplemental during the following September. Written application must be made before August 15. A fee of $10.00 for each supplemental paper is payable to the Cashier as soon as the application has been approved. A student who wishes to write a supplemental examination outside McGill must make application to the Director to do so before August 1st. There is an additional fee of $10.00 for establishing such an outside centre.

HEALTH SERVICES

All students are required to have a medical examination by the University Health Service. There are no exceptions to this rule. Provision is made for health service to students *during the session* but not during vacations. (See *General Information* pamphlet for details.)

Students in the Basic Programme, before starting nursing practice in the hospitals, are required to have inoculations for typhoid, paratyphoid, tetanus, diphtheria and tuberculosis. These may be received through the University Health Service during the first year.

FEES

The University reserves the right to make changes without notice in its published schedule of tuition, board and residence, and other fees.

University fees include an annual fee of $15 for the support of student organizations. There are no other regular fees, and the only extras are for late registration, for graduation in absentia, etc.

University fee		$450.00
If paid by instalments:		
First instalment	$227.50	
Second instalment	227.50	
Instalment fee (included in above)		5.00
Late payment fee		2.00

Fees are due and payable at the Accounting Office in Dawson Hall, between the hours of 9 A.M. and 4 P.M. on or before September 27. A late fee of $2.00 is charged for payment after this date. As soon as possible after the prescribed dates the Chief Accountant will send to the Director of the School a list of the registered students who have not paid their fees. The Director will thereupon suspend such students from further attendance until the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

BOARD AND RESIDENCE

There are no University residence facilities for graduate nurse students of the School for Graduate Nurses. Every assistance is given to those seeking accommodation through a Rooms Registry located at the McGill Union. Application for rooms must be made in person from August 27 to October 1. The cost of board and lodging in approved rooms varies from $65 upwards per month. Separately, good board costs from $40.00, and a room from $35.00 upwards a month.

Students in the Basic Nursing Course whose homes are outside of Montreal live at Royal Victoria College. When application is made to the School for Graduate Nurses, application for residence must be made also to the Warden of Royal Victoria College, such application to be made before May 31. Forms for this purpose may be obtained from the College or from the Registrar's Office.

Those students who do not reside with their parents or guardians in Montreal and who wish to live outside the University residence are

required to submit their plans for residence in writing to the Warden and to obtain written approval. Students in this category who are entering the University for the first time must in all cases fill out residential application blanks when the academic application is submitted.

EXPENSES

APPROXIMATE COST OF THE COURSE

University fees	$450.00
Books and incidentals	approx. 50.00
Board and room	$700.00 to 900.00
Royal Victoria College (students in the Basic Course)	$685.00 (session)

Field work may involve additional expense for travel and living which the student must consider in estimating expenses.

UNIFORMS

All students in the Graduate Nurse Programme are advised to have at least two white uniforms. Full white uniform is required for field experience in hospitals and for Convocation. For students in public health nursing special field uniforms are available for rental at the School. These students should bring white collars and any plain dark hat and coat. Brown or black walking shoes with low heels are required. Some public health nursing students have field work in hospitals where white uniforms are worn.

Students in the Basic Nursing Programme are required to supply themselves with the School uniform obtained through the School.

SCHOLARSHIPS FOR GRADUATE NURSES

Applicants for scholarships must meet the University entrance requirements for Junior Matriculation. Preference will be given to applicants with experience in the nursing field.

1. ALEXANDRA HOSPITAL

The Board of Governors offers a scholarship in the form of full maintenance at the hospital during a year's study at the School for Graduate Nurses. Only members of the hospital nursing staff are eligible.

2. ASSOCIATION OF NURSES OF THE PROVINCE OF QUEBEC

(*a*) Two bursaries of $500 are customarily offered to practising members in good standing of the Association of Nurses of the Province of Quebec, whose qualifications are acceptable to a university. Any approved course may be selected.

(*b*) District No. 11 (English Chapter) Association of Nurses of the Province of Quebec offers a bursary of $1,500 to a member of the Chapter whose qualifications are acceptable to the University. The nurse who accepts the bursary will be expected to work in the Province of Quebec for two years following the completion of her course.

3. MONTREAL CHILDREN'S HOSPITAL SCHOOL OF NURSING

The Board of Governors offers a scholarship in the form of lodging at the hospital during one year's study at the School for Graduate Nurses. Those accepting the scholarship are required to work for one year at the Montreal Children's Hospital on completion of the course.

4. MONTREAL GENERAL HOSPITAL SCHOOL OF NURSING

Bursaries are provided annually by the Montreal General Hospital to graduate nurses for study to prepare them for administrative and teaching positions.

5. ROYAL VICTORIA HOSPITAL SCHOOL OF NURSING

(*a*) The *Mabel F. Hersey Scholarship* is given annually by the Board of Governors for a year of postgraduate study at the School for Graduate Nurses, McGill University.

(*b*) The *Emma Thomas Scholarship* is offered annually for postgraduate study.

(*c*) The *Ida McGregor Scholarship* is offered annually for postgraduate study.

6. VICTORIAN ORDER OF NURSES FOR CANADA

The Victorian Order of Nurses for Canada offers bursaries of $750 to nurses to assist them in taking preparation in Public Health Nursing. Following their course, the recipients are obligated to work one year for the Victorian Order in the area where their services are most urgently needed.

7. QUEEN ELIZABETH HOSPITAL

The *Martha Warren Scholarship* of $415 is offered by the Alumnae Association of the Queen Elizabeth Hospital School of Nursing to a member who wishes financial help for postgraduate study. Application for this

scholarship must be submitted on or before April 25 of each year. The nurse accepting this scholarship is expected to work in the Queen Elizabeth Hospital for one year following the completion of her course, provided there is a position open in the field of her study.

8. REDDY MEMORIAL HOSPITAL

The Board of Directors offers a bursary to assist with a year's study at the School for Graduate Nurses. Only graduates of the School of Nursing or Staff Nurses of the Hospital are eligible. They should apply to the Director of Nursing.

W. K. KELLOGG FOUNDATION LOAN FUND

Through the generosity of the Foundation, this fund has been established to assist graduate nurses who have unexpected expenses while registered in courses at the School. For further particulars applicants should consult the Director of the School for Graduate Nurses.

BURSARIES

GOVERNMENT BURSARIES

A limited number of bursaries are made available through the School, by the Province of Quebec, for nurses who wish to remain in the province. Students from other provinces should apply to their respective Provincial Departments of Health.

PROGRAMMES OF STUDY FOR GRADUATE NURSES

LEADING TO A DIPLOMA

All students in the First year are required to take the prescribed core courses which are fundamental to all areas of nursing. In addition, students select courses which fulfil the requirements of their major field of interest. Upon the completion of one year of study students are granted a diploma.

LEADING TO THE DEGREE OF BACHELOR OF NURSING

Students who have met the requirements for the diploma may proceed with the Second year of the degree programme, providing such students have McGill Senior Matriculation standing or its equivalent.

FIELD EXPERIENCE

FIRST YEAR

Concurrent field experience forms part of a number of courses. In addition, the months of September and May are devoted to field experience.

Field Experience in Public Health Nursing: The normal requirement for students without previous public health experience is ten weeks. This requirement is adjusted to meet individual needs, and students are not expected to repeat experience which has been gained under adequate supervision. Ordinarily there are four weeks during September and six weeks following the examinations in the spring.

Field Experience in Teaching and Supervision in Schools of Nursing: Students enrolled in this programme will have eight weeks of field experience: four weeks in September and four weeks following examinations in the spring.

SECOND YEAR

All students in the Second year are expected to complete two months of field experience during May and June.

FIRST YEAR

CORE COURSES (REQUIRED OF ALL STUDENTS IN THE FIRST YEAR)

SOCIOLOGY 210

PSYCHOLOGY 21

NG-11 COMMUNITY ORGANIZATION

NC-11 PRINCIPLES OF LEARNING AND METHODS OF TEACHING

NC-12 NUTRITION

NC-13 HUMAN GROWTH AND DEVELOPMENT

COURSES IN FIELD OF SPECIALIZATION

Basic Sciences and Clinical Teaching

NA-11 WARD MANAGEMENT AND SUPERVISION

Two full courses from those listed below. (Students in the degree programme preparing to teach the basic sciences do not take NA-11 and are required to take two sciences. Students in the clinical fields select a clinical course and one additional course. All students entering with Junior Matriculation are strongly advised to select English):

NS-12 Medical-Surgical Nursing

NS-14 Psychiatric Nursing

NS-16 Maternal and Child Health (Students do major work in either Obstetric or Pediatric Nursing)

Physics 11, Chemistry 11, Biology 100

Chemistry 22a (for students with Senior Matriculation standing in Chemistry)

English, History, Philosophy

(*See Announcement of Faculty of Arts and Science.*)

Public Health Nursing

NS-11 PUBLIC HEALTH NURSING

NC-14 PUBLIC HEALTH PRACTICE

One full course from those listed below:

Science

English

History

Philosophy

(*See Announcement of Faculty of Arts and Science.*)

SECOND YEAR

Nursing Education (Advanced), and Administration in Hospitals and Schools of Nursing.

CORE COURSES: (REQUIRED OF ALL STUDENTS REGISTERED IN TEACHING IN SCHOOLS OF NURSING AND ADMINISTRATION IN HOSPITALS AND SCHOOLS OF NURSING)

SOCIOLOGY 340a and 311b
ECONOMICS 211G
NC-25 PHILOSOPHY OF EDUCATION
BUSINESS ADMINISTRATION 450
NC-23 INTRODUCTION TO STATISTICS
NC-28 EPIDEMIOLOGY

COURSES IN FIELD OF SPECIALIZATION

Basic Sciences and Clinical Teaching

NE-21 CURRICULUM IN SCHOOLS OF NURSING

One full course from the following:

Physiology 22 (See prerequisite)
Sociology
Economics
English
History
Philosophy
Modern Language
(*See Announcement of Faculty of Arts and Science.*)

NG-21 STUDIES AND PROJECTS IN THE FIELD OF SPECIALIZATION:

Teaching the Sciences,
Medical-Surgical Nursing,
Maternal and Child Health,
Psychiatric Nursing
(Field work necessary for the study in addition)

Administration in Hospitals and Schools of Nursing

NA-24 ADMINISTRATION IN HOSPITALS AND SCHOOLS OF NURSING

NC-27 HOSPITAL ADMINISTRATION

One full course from the following:

Physiology 22 (See prerequisite)
Sociology
Economics
English
History
Philosophy
Modern Language
(*See Announcement of the Faculty of Arts and Science.*)

NG-21 STUDIES AND PROJECTS IN THE FIELD OF SPECIALIZATION:

Administration of Hospital Nursing Service *or*
Administration in Schools of Nursing
(Fieldwork necessary for the study in addition)

SECOND YEAR

Public Health Nursing(Advanced)—Supervision and Administration in Public Health Nursing.

CORE COURSES: (REQUIRED OF ALL STUDENTS REGISTERED IN ADVANCED WORK IN PUBLIC HEALTH NURSING)

SOCIOLOGY 340a and 311b

ECONOMICS 211G

NC-25 PHILOSOPHY OF EDUCATION

BUSINESS ADMINISTRATION 450

NC-23 INTRODUCTION TO STATISTICS

NC-28 EPIDEMIOLOGY

COURSES IN FIELD OF SPECIALIZATION

Supervision and Administration in Public Health Nursing

NA-21 SUPERVISION AND ADMINISTRATION IN PUBLIC HEALTH NURSING

One full course from the following:

Physiology 22 (See prerequisite)
Sociology
English
History
Philosophy
Modern Language
(*See Announcement of the Faculty of Arts and Science.*)

NG-21 STUDIES AND PROJECTS IN PUBLIC HEALTH NURSING
(Fieldwork necessary for the study in addition)

DESCRIPTION OF COURSES FOR GRADUATE NURSES

NURSING — GENERAL

NG-11 COMMUNITY ORGANIZATION

An analysis of changing patterns of home and community life and factors responsible for these changes; current health problems arising from social changes; progress in medicine and trends in nursing to meet community needs.

One hour, two terms. *Professor Chittick and special lecturers*

NG-21 STUDIES AND PROJECTS IN THE FIELD OF SPECIALIZATION

In this course students make a study of a selected problem in nursing using simple research methods. Each student is expected to choose a problem for study which will be of interest and help in her special field of nursing. The course is conducted as a seminar with class discussions and individual conferences.

One and one-half hours, two terms. *Specialists in various fields*
(Fieldwork necessary for the study in addition.)

NURSING — EDUCATION

NE-21 THE CURRICULUM IN SCHOOLS OF NURSING

This course is designed to develop an understanding of the factors which affect the curriculum in schools of nursing and the issues involved. The content includes the application of the principles of curriculum construction to the school of nursing curriculum—philosophy, purpose and aims of the school, formulation of objectives, selection, organization, and evaluation of learning experiences, methods of teaching, supervision, and guidance of students.

Two hours, two terms. *Professor Allen*
(Concurrent field experience in addition.)

NURSING — ADMINISTRATION

NA-11 WARD MANAGEMENT AND SUPERVISION

A study of administrative planning for the hospital ward as the unit of hospital administration, plans for patient care, controlling the environment, supplies and equipment, personnel, ward teaching as part of the

administrative plan, the function of the ward in the educational programme of the student nurse; the principles of supervision applied to nursing education and nursing service in establishing a supervisory programme.

Three hours, second term. *Mrs. G. A. Gemeroy*

NA-24 ADMINISTRATION IN HOSPITALS AND SCHOOLS OF NURSING

The scope and principles of administration, staffing and supervisory problems, orientation of personnel, in-service education, the organization of the school of nursing, recruitment and selection of students, school publicity, curriculum planning, housing of students, budgeting.

Two hours, two terms. *Professor Chittick and special lecturers*

NA-21 SUPERVISION AND ADMINISTRATION IN PUBLIC HEALTH NURSING

Principles of administration and supervision are applied to the field of public health nursing in studying official and voluntary health services. This course includes the planning and evaluation of services, methods of organization and financing, personnel management, human relationships, and supervisory functions with emphasis on staff and student education.

Two hours, two terms. *Professors Peverley and Hurd*

(Concurrent field experience in addition.)

NURSING — SPECIALTIES

During the fall term all students in the first year participate in a course entitled General Nursing which is closely linked with the September field experience and is designed to assist students to identify the elements fundamental to all nursing, and so to broaden their understanding of the comprehensive nature of nursing. The course consists of presentations by staff members and special lecturers followed by group discussions and conferences. The hours devoted to this course constitute part of the time allocated to public health nursing and to the various clinical specialties.

NS-11 PUBLIC HEALTH NURSING

An introduction to the principles and methods of public health nursing practice; application of principles and methods in the development of maternal, infant, pre-school, school, industrial, and morbidity nursing services; the staff nurse in relation to administration and supervision.

Two hours, first term; three hours, second term.

Professors Peverley and Hurd

(Concurrent field experience in addition.)

NS-12 MEDICAL-SURGICAL NURSING

The course aims to develop a deep appreciation of the individual as a patient, the factors which affect his illness and recovery, and the effect of illness upon his family and the community. The content includes a study of the processes which assist in the maintenance of health, common deviations and the body's general reactions to these deviations. The course stresses the implications for nursing in the care of the general medical and surgical patient and the special needs as determined by his condition. Learning experiences are provided in the care of medical-surgical patients, teaching of medical-surgical nursing and related subjects, and in the supervision and guidance of students.

Three hours, two terms. *Professor Allen and special lecturers*
(Concurrent field experience in addition.)

NS-14 PSYCHIATRY AND PSYCHIATRIC NURSING

This course is designed to increase the student's understanding of personality disorders through lectures, conferences, and discussions concerning human behaviour, social interaction, present psychiatric thought and practice. Visits to community agencies for prevention and rehabilitation emphasize the concept of total health. Field work in treatment centres provides opportunity for application of knowledge to nursing care, nursing service, and nursing education.

Three hours, two terms. *Mrs. G. A. Gemeroy and special lecturers*
(Concurrent field experience in addition.)

NS-16 MATERNAL AND CHILD HEALTH NURSING

This course is planned for students who are interested in Obstetric or Pediatric Nursing. The first term is devoted to the study of the normal maternity cycle, the newborn, and growth and development of the child through adolescence. Time is spent in community agencies such as antenatal clinics, nursery schools, schools, and community centres. During the second term, students have an opportunity to apply their knowledge to the study of nursing methods and teaching in either Obstetric or Pediatric Nursing. The course includes lectures, conferences and clinics conducted by specialists in various fields.

Three hours, two terms. *Professor Logan and special lecturers*
(Concurrent field experience in addition.)

NURSING — COGNATE COURSES

NC-11 PRINCIPLES OF LEARNING AND METHODS OF TEACHING

A study of how we learn and an analysis of those methods of teaching that facilitate learning. General principles of curriculum planning.

Two hours, first term. *Professor Nix*

NC-12 NUTRITION

Recent advances in the field of nutrition; prevalence, causes, and prevention of malnutrition; current health problems involving nutrition.

One hour, first term. *Professor Bain*

NC-13 HUMAN GROWTH AND DEVELOPMENT

In the first term the course deals with normal growth and development and in the second with mental health.

Three hours, first term. *Professor Rabinovitch*

One hour, second term. *Professor MacLeod*

NC-14 PUBLIC HEALTH PRACTICE

The development and present status of public health in Canada and other countries; policy and function of national, provincial, and local health departments; role of the voluntary agency, legislation affecting health; vital statistics; epidemiology; planning community health programmes, rural and urban; maternal, infant, pre-school, and industrial health services, evaluation of health services.

Two hours, two terms. *Professor MacMillan*

NC-23 INTRODUCTION TO STATISTICS

This course is designed to develop an understanding of statistical methods used in educational measurement and in public health. The content presented includes: measures of central tendency and dispersion, value and uses of statistical data; collection of data, tabular, graphical, and textual presentation; rates and their reliability and tests for statistical significance.

Two hours, first term. *Professors Hurd and Peverley*

NC-25 PHILOSOPHY OF EDUCATION

An introduction to the basic subject matter of educational philosophy; an historical analysis and interpretation of the more important elements in modern education derived from surveying the history of education; a study of critical issues in contemporary education.

Two hours, first term. *Professor Nix*

NC-27 HOSPITAL ADMINISTRATION

Principles of organization and administration applied to the hospital; committees, finance, purchasing, maintenance, housekeeping, personnel, medical and nursing services; administration of departments, health service, the school of nursing in the hospital.

Two hours, second term. *Dr. Turner*

Mr. Westbury

NC-28 EPIDEMIOLOGY

The course will cover the growth of epidemiology from a purely descriptive to an experimental science. The technique of epidemiological investigation will be discussed. The place of epidemiology in the understanding of both infectious and non-infectious diseases will be stressed, as well as the contribution the epidemiological approach can make to the appreciation of other problems affecting the health and well-being of the community.

Two hours, second term. *Professor Fleming*

COURSES GIVEN IN OTHER FACULTIES

Students have an opportunity to select courses from those offered in the Faculty of Arts and Science as outlined in the various programmes. (See pages 3218, 3219, 3220.)

PROGRAMME OF STUDY IN BASIC NURSING

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

This programme combines general education at university level with the knowledge and skills essential to the practice of nursing. It is designed to make the best use of scientific and cultural courses to enrich the knowledge and develop the skills of young women interested in making an outstanding contribution in the field of nursing.

During the First year students complete the requirements of the First year of the B.Sc. course in the Faculty of Arts and Science, and, in addition, are introduced to the profession of nursing through a course of nine weeks which begins at the close of the academic year, or about the first of May. This course is completed early in July and students then have a vacation of three months. In the four subsequent years the programme combines both academic and professional courses with selected clinical experience in the McGill teaching hospitals and in public health agencies in Montreal. Additional hospital and public health experience is obtained during the summer months with the exception of one vacation month each year. Throughout the course the aim is to give the student breadth of understanding for the building of sound nursing practice.

The programme meets the requirements for registration under the Quebec Nurses' Act.

First year

English 100 and 100C
Mathematics 111
Chemistry 11
Physics 11
Biology 100

May and June—Nursing Ia—
9 weeks.

Vacation—3 months.

Second year

Anatomy 2
Physiology 22
Chemistry 22a
Psychology 21
Nursing Ib and IIa

Summer Session:
Nursing IIb—3 months
Nursing practice in hospital—
1 month
Vacation—1 month

Third year

English (selected course)
Sociology 210
Psychology 33
Nutrition
Bacteriology
Nursing IIc

Summer Session:
Nursing III—3 months
Nursing practice in hospital—
1 month
Vacation—1 month

Fourth year

Sociology 340a and 311b
History 100 *or* Economics 100
or a Modern Language
Nursing IVa

Summer Session:
Nursing IVb and V—13 weeks
Nursing practice in hospital—
1 month
Vacation—1 month

Fifth year

Social Psychology 42
Elective from Faculty of Arts
and Science
Nursing VI and VII and VIII

DESCRIPTION OF COURSES IN BASIC NURSING

NURSING Ia and b, INTRODUCTION TO NURSING. This course is designed to introduce the student to the broad field of nursing and to the idea of the comprehensive nature of nursing care both within the hospital and in the community. Through individual and group discussion, demonstration and practice, she is assisted to care for the less acutely-ill patient and to develop some basic nursing skills. During observations in the community, emphasis is placed on the health needs of the individual, the factors influencing these needs and the resources available for meeting them.

(a) 10 hours class and 20 hours practice, 9 weeks, first summer.

(b) 1½ hours class and 2 hours practice, Second year, first term.

NURSING IIa, b and c, GENERAL NURSING. A study of the body's general reactions in disease and the principles underlying diagnosis and treatment. Within the total treatment to plan the student begins to identify the role of nursing and with guidance to plan and provide for the nursing care of the acutely-ill patient. She gains experience in those departments involved in the care of the acutely-ill person and visits some of the agencies for rehabilitation in the community.

(a) 1 hour class, Second year, second term.

(b) 10 hours class, 25 hours practice, 13 weeks, second summer.

(c) 2 hours class, 4 hours practice, Third year, first term.

NURSING III, MATERNAL AND CHILD HEALTH NURSING. The student cares for patients during pregnancy and the puerperium, in infancy and childhood. Emphasis is placed upon the family unit in planning for and promoting care. Experience is planned in the hospital wards and out-patient departments, and in the home.

10 hours class, 20 hours practice, 13 weeks, third summer.

NURSING IVa and b, MEDICAL-SURGICAL SPECIALTIES. This course is designed to guide the student as she becomes involved in more complex interpersonal situations resulting from responsibility for the care of a greater number of patients. The student meets with nursing problems such as are found in the care of the patient at night, the long-term patient and patients with special medical-surgical conditions.

(a) 6 hours class, 20 hours practice, Fourth year, two terms.

(b) 6 hours class, 28 hours practice, 1 month, fourth summer.

NURSING V, PSYCHIATRIC NURSING. A study of present psychiatric thought and practice through lectures, inter-disciplinary conferences and discussions.

The development of interpersonal and group skills as therapeutic measures is emphasized during the students guided care of patients with varying degrees and kinds of behavior disorder. Experience is planned in the community, the general hospital and the mental hospital.

12 hours class, 20 hours practice, 9 weeks, fourth summer.

NURSING VI, NURSING IN THE COMMUNITY. This course is designed to enable the student to develop increased understanding of relationships between social characteristics and patterns of health and disease and of the organization of services to meet the health needs of the individual, the family and the community. Students have supervised practice in voluntary and official health agencies.

5 hours class, 20 hours practice, Fifth year, first term.

NURSING VII, WARD MANAGEMENT AND TEACHING. Study of the various aspects of ward management and clinical instruction with an opportunity to assume some responsibility for the management of a hospital ward.

3 hours class, 20 hours practice, Fifth year, second term.

NURSING VIII, NURSING IN TODAY'S SOCIETY. In this course students study the profession of nursing in society today, and become familiar with current problems in nursing service and in nursing education. The course is conducted as a seminar with students participating in conferences, discussions and group projects.

2 hours, Fifth year, second term.

ANATOMY 2, SYSTEMATIC ANATOMY (given in the Faculty of Medicine). Lectures and demonstrations designed to provide a knowledge of the anatomical structure of the vital organs by systems.

2 hours class, 2 hours laboratory, two terms.

Professor C. P. Martin and Staff

BACTERIOLOGY (given in the Faculty of Medicine).

To be arranged.

NUTRITION (given in the Department of Health and Social Medicine).

Professor Bain

For other courses see Calendar for Faculty of Arts and Science.

McGill University

Montreal

School of Social Work

1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:—

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture and School of Household Science)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. For limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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School of Social Work

CALENDAR FOR 1957 - 1958

1957

September 11th, Wednesday. Registration all Second year students (9:00-12:00) and all part-time students (1:00-4:00).

September 12th, Thursday. Registration all First year students.

September 13th, Friday. General Assembly and Reception all students.

September 16th, Monday. Instruction begins.

October 7th, Monday. Fall Convocation.

December 20th, Friday. First term ends.

1958

January 8th-10th, Wednesday-Friday. Examinations.

January 13th, Monday. Second term begins.

April 4th-7th, Friday-Monday. Easter Vacation.

April 18th, Friday. Last day of lectures.

April 22nd, Tuesday. Last day for filing M.S.W. theses for Spring Convocation.

April 23rd-25th, Wednesday-Friday. Examinations.

April 28th, Monday. Full-time field work (1st year) and full-time research (2nd year) begin.

May 28th, Wednesday. Convocation.

June 6th, Friday. Second term ends.

August 25th, Monday. Last day for filing M.S.W. theses for Autumn Convocation.

Social Work

The School of Social Work is under the administrative jurisdiction of the Faculty of Arts and Science.

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, M.A., Ph.D., D.Sc., D. de l'U., D.C.L., LL.D., F.R.S.C. *Principal*

David L. Thomson, B.Sc., M.A., Ph.D., LL.D., F.C.I.C., F.R.S.C. *Vice-Principal*

H. N. Fieldhouse, M.A., F.R.S.C. *Dean of McGill College (Faculty of Arts and Science)*

John J. O. Moore, M.A., Ed.D. *Director of the School of Social Work*

William Bentley, C.G.A., F.C.I.S., R.I.A. *Bursar*

Colin M. McDougall, D.S.O., B.A. *Registrar*

G. A. Grimson, B.Com. *Comptroller*

SCHOOL OF SOCIAL WORK OFFICE

3600 University Street

Montreal 2, P.Q.

Telephone—MA 9181

STAFF OF THE SCHOOL OF SOCIAL WORK

J. O. W. Brabander, M.D., C.M. — *Lecturer in Medicine*

Dorothy Freeman, B.A., Diploma, McGill School for Social Workers
Assistant Professor of Social Work, Psychiatric Social Work

Cuthbert G. Gifford, D.F.C., B.A., M.S.W., University of Pittsburgh, School of Social Work
Assistant Professor of Social Work, Group Work

Margaret Griffiths, B.A., Diploma, School of Social Work, University of Toronto, M.A., School of Social Service Administration, University of Chicago — *Assistant Professor of Social Work, Child Welfare*

H. David Kirk, M.A., Ph.D., Cornell University
Associate Professor of Social Work, Research and Human Behaviour

Heinz E. Lehmann, M.D.(Berlin) — *Assistant Professor of Psychiatry*

J. B. Lightman, B.A., LL.B., M.S.S., University of State of New York
Associate Professor of Social Work, Public Welfare

Francis Lux, Dr. Jur., M.S.W., McGill University School of Social Work
Supervisor of Field Work Unit

Alastair W. MacLeod, B.Sc., M.B., Ch.B., D.P.H., M.R.C.P.
Assistant Professor of Psychiatry

John J. O. Moore, B.A., M.A.(Soc. Wk.), University of Denver, Ed.D., Columbia University
Professor of Social Work, Community Organization. Director of the School.

Isabel A. Munroe, B.A., Diploma, Montreal School of Social Work
Supervisor of Field Work Unit

Katherine Nickel, B.A., B.L.S. — *Librarian*

Miquel Prados Y Such, M.D.(Madrid)
Associate Professor of Psychiatry and Adviser for Psychiatric Sequence

Verity M. Ross, M.Sc., Ph.D., McGill University
Assistant Professor of Social Work, Human Behaviour, Research and Field Instruction

Arthur Rotman, M.S.(Soc.Admin.), School of Applied Social Sciences, Western Reserve University — *Special Lecturer in Group Work Skills*

MARY STEVENSON, B.A., Diploma, School of Social Work, University of Toronto, M.S.W., McGill University School of Social Work
Assistant Professor of Social Work, Family Welfare

GLADYS STUART, B.A., Diploma in Social Studies, University of Sydney
Supervisor of Field Work Unit

HELEN H. TUCK, B.A., M.S.W., McGill University School of Social Work
Assistant Professor of Social Work, Medical Social Work

DAVID WEISS, B.S.S., Diploma, New York School of Social Work
Special Lecturer in Administration of Social Agencies

EVA R. YOUNGE, M.A.
Associate Professor of Social Work and Director of Research

SESSIONAL SUPERVISORS IN FIELD WORK

MISS BARBARA ALLAN, M.S.W.
MISS JOYCE BEATTY, M.S.W.
MR. CONRAD F. CARRINGTON, B.S.W.
MR. STANLEY A. CLYKE, B.S.W.
MRS. BARBARA COWAN, M.S.W.
MISS MARY W. CURRIE, B.A., Dipl.Soc.Wk.
MISS RHODA ENGLANDER, M.S.W.
MR. JOSEPH FRIEDMAN, B.S.W.
MISS G. ELEANOR FURLONG, M.S.W.
MR. HARVEY GOLDEN, M.A.
MISS MARY GOLUBEVA, M.S.W.
MISS EILEEN GRIFFIN, B.A., Dipl.Soc.Wk.
MISS HENRIETTA HARVIE
MRS. M. JEAN HENSHAW, B.A., Dipl.Soc.Wk.
MISS JEAN HUGGARD, M.S.W.
MR. JOSEPH KAGE, B.A., Dipl.Soc.Wk.
MR. SEYMOUR KLINE, M.S.(Soc.Wk.)
MISS RHODA KOPSTEIN, B.S.W.
MISS ELIZABETH LAVERS, M.S.W.
MISS THERESE LAVOIE, M.S.S.
MISS JESSIE LAWRENCE, M.S.W.
MISS CONSTANCE LETHBRIDGE
MISS MARY M. MACLEAN, M.S.W.
MISS BERTHE MICHAUD, Dipl.Soc.Wk.
MISS PATRICIA MORRISON, M.S.W.
MISS MARYGOLD NASH, M.S.W.
MISS FREDDA PEDEN, M.S.W.
MISS A. M. PETTEYS, M.S.W.
MRS. GERINE M. PHILLS, M.S.W.
MISS DOROTHY PLEMING, B.A.
MRS. PHYLLIS POLAND
MRS. JOAN ROBERTS, M.S.W.
MR. A. ROSENBLATT, M.A., Dipl.Soc.Wk.
MRS. RITA SAMUEL, M.S.W.
MR. WILLIAM SHALINSKY, M.S.W.
MRS. DOROTHY SIROTA, Dipl.Soc.Wk.
MR. MURRAY M. SKLAR, B.S.S., M.S.S.W.
MISS JOAN SMITH, M.S.W.
MRS. RUTH TANNENBAUM, B.A., Dipl.Soc.Wk.
MISS JESSIE WATTERS, M.S.S.
MR. E. WEINER, M.S.W.
MISS MARIA WICHERS, M.S.W.

CENTRES FOR FIELD INSTRUCTION

MONTREAL

Allan Memorial Institute of Psychiatry of the Royal Victoria Hospital: Director, Dr. D. Ewen Cameron

Baron de Hirsch Institute. Family Welfare Department: Executive Director, David Weiss

B'Nai B'Rith Youth Organization: Director, Miss Rhoda Englander

Boys' Farm and Training School: Executive Director, W. F. Shepherd

Catholic Boys' Services: Director, J. F. Dalton

Children's Service Centre: Executive Director, Mrs. Muriel B. McCrea

Confederation of Canadian Catholic Labour Unions: Educational Officer, J. P. Lefebvre

Syndicat National des Fonctionnaires Municipaux de Montréal, C.T.C.C.: Directeur du Service d'Education, Jean Robert Gauthier

Department of Veterans' Affairs, Social Service Division: District Supervisor, Mrs. Gladys Fulford

Ste. Anne's Hospital, Medical Social Service Department: Director, Miss Mary M. MacLean

Family Welfare Association: General Secretary, Miss Elinor G. Barnstead

Federation of Jewish Community Services: Executive Director, Arthur S. Rosichan

Jewish Child Welfare Bureau: Executive Director, David Weiss

Jewish General Hospital, Social Service Department: Director, Mrs. Esther Spector

Jewish Immigrant Aid Society: Director of Social Services, Joseph Kage

John Howard Society: Executive Director, Mrs. Kathleen Campbell

Mental Hygiene Institute: Director, Dr. Baruch Silverman

Montreal Boys' Association: Executive Director, C. A. Wylie

MONTREAL CHILDREN'S HOSPITAL, Social Service Department: Director Mrs. Christina G. James

McGILL UNIVERSITY, SCHOOL OF ARCHITECTURE: Chairman, Committee on Physical Planning, Professor H. Spence-Sales

MONTREAL COUNCIL OF SOCIAL AGENCIES: Executive Director, Charles H. Young

MONTREAL GENERAL HOSPITAL, Social Service Department: Director, Miss Avis Pumphrey

MONTREAL GIRLS' ASSOCIATION: Programme Director, Mrs. I. McLaren

MONTREAL NEUROLOGICAL INSTITUTE, Social Service Department: Director, Miss Joyce Beatty

NEGRO COMMUNITY CENTRE: Executive Director, S. A. Clyke

NEIGHBOURHOOD HOUSE: Executive Director, E. Weiner

OCCUPATIONAL THERAPY AND REHABILITATION CENTRE: Executive Director, Miss Constance Lethbridge

PROTESTANT BOARD OF SCHOOL COMMISSIONERS, Attendance Department: Chief Attendance Officer, B. H. Brown

ROYAL VICTORIA HOSPITAL, Social Service Department

ST. ANDREW'S YOUTH CENTRE: Executive Director, Miss Winnifred McCunn

ST. LAURENT NEIGHBOURHOOD ASSOCIATION, INC.: Executive Secretary, Miss A. I. Vail

TRAVELLERS' AID SOCIETY: Executive Director, Mrs. M. Jean Henshaw

UNIVERSITY SETTLEMENT: Executive Director, Howard R. McCartney

VERDUN PROTESTANT HOSPITAL, SOCIAL SERVICE DEPARTMENT: Director, Miss Joan M. Smith.

YOUNG MEN'S AND YOUNG WOMEN'S HEBREW ASSOCIATION: Executive Director, Harvey Golden

YOUNG WOMEN'S CHRISTIAN ASSOCIATION: Executive Director, Miss Ruth M. Low

OTTAWA

CHILDREN'S AID SOCIETY: Executive Director, Clarence Halliday

School of Social Work

GENERAL INFORMATION

The McGill University School of Social Work offers a full two-year course of graduate professional education for social work. McGill University is organized by Faculties, with the School of Social Work administered under the Faculty of Arts and Science.

In 1918, McGill University founded a School for Social Workers which was discontinued in 1932. In 1933, with the approval and cooperation of the University, an independent school, offering a two-year course to university graduates and known as the Montreal School of Social Work, was established. In October 1945, the University resumed the function of social work education and, by agreement with its Board of Trustees, the Montreal School of Social Work became the McGill University School of Social Work. The final step in integrating the School into McGill University was taken in 1950, since which time the University has assumed complete responsibility for it. The School is a fully accredited member of the Council on Social Work Education, this organization having supplanted the American Association of Schools of Social Work, of which the School became a member in 1939. Through its membership in this and other national and international organizations, the School is in close touch with significant developments in social work education on the North American continent, and throughout the world.

PURPOSE

The purpose of the School is to provide qualified men and women with the preparation necessary for successful practice in all branches of professional social work. This education is offered on a graduate level, in a curriculum of courses, supervised practice, and research, planned in accordance with the general policies and standards of the Council on Social Work Education. A general basic two-year course of training is given which prepares students for the field of social work. Included in this course of training are the accredited sequences in psychiatric social work, medical social work, and social group work, which have received special approval by the Council on Social Work Education and professional bodies.

THE PROFESSION OF SOCIAL WORK

During the past few decades the services of trained social workers have been increasingly sought by both public and private social welfare agencies. The supply of such workers has never kept pace with the demand and the present shortage is gravely acute. Urgent requests for graduates to fill responsible and well-paid positions are received almost daily. It is obvious that the development of social security programmes and welfare schemes of many kinds, both at home and on the international level, will afford opportunities for satisfying and useful careers to men and women who equip themselves in a school of social work to render services which fall within the following general groupings:

Social Case Work, involving direct service to individuals and families with four main subdivisions: Family Social Work, Child Welfare, Medical Social Work, and Psychiatric Social Work.

Social Group Work, designed to provide individuals with socialized experience through group activities carried on in recreation centres, social settlements, camps, community centres, hospitals, and institutions.

Community Organization, concerned with the planning, organization, and development of the community to meet changing community situations and needs.

Public Welfare, concerned with social services under public auspices, the particular relationship they provide with the clientele, their administration, and their planning.

Social Administration, dealing with the administration and planning phases of social work, including supervision of other workers, teaching, and consultant services.

Research in Social Work, which, in addition to the type of research common to all social sciences, is specifically addressed to programmes, techniques, cost, efficiency, and social significance of the work of social agencies under public and private auspices.

Graduates of the School are to be found in responsible positions in the numerous private social agencies in the cities and rural areas of Canada, and in foreign countries, as well as in the public welfare services, federal, provincial, and municipal. Increased recognition of the value of professionally trained personnel and improved salaries for all classes of social work positions in recent years indicate that well qualified graduates can look forward to fairly rapid advancement and reasonable remuneration.

RESOURCES AND EQUIPMENT

The School is an integral part of McGill University and its students are able to participate fully in the varied life of a great university. Its affiliation with the Faculty of Arts and Science assures close liaison with the Faculty's resources, particularly in the social and biological sciences. In several related fields of professional study—particularly law, medicine, and psychiatry—a rich university tradition of scholarship and achievement is available to it. It has its own building providing classroom accommodation, students' common room, and a compact up-to-date social work library to which new books, documents, and pamphlets are added continually. Students may also use the Redpath Library, the Medical Library, and special libraries in the School of Commerce, the Faculty of Law, and the Mental Hygiene Institute.

Montreal, the largest and most cosmopolitan city of Canada, affords varied community resources in both the public and private social services. A bilingual community, and the main port of entry for immigrants, it affords unique opportunities for study of social problems. The well known teaching hospitals of the city offer unexcelled opportunities for medical and psychiatric social work training. Four Financial Federations and two Councils of Social Agencies afford a fertile field for the study of community organization. Private family, child welfare, and group work agencies are well organized and offer diversified field experience. Federal and Provincial Government local administrative offices, such as the National Employment Service, Unemployment Insurance Commission, Workmen's Compensation Board, Old Age Pensions Board, Mothers' Allowance Commission, etc., are available for study.

DEGREES

The degree of Master of Social Work (M.S.W.) is awarded to students who complete the two-year graduate course in accordance with the regulations of the Faculty of Arts and Science.

ADMISSION REQUIREMENTS

1. DEGREE STUDENTS

Full-time (General)
Part-time (Limited Degree)

Work for the degree may be undertaken on either a full-time or part-time basis, but all requirements for the M.S.W. degree must be fulfilled within a six-year period, and no student may qualify for the degree without a session of resident study, in which he carries approximately two thirds of a full-time programme.

Applicants must meet the following requirements:

(a) Graduation with a bachelor's degree from a university or college of recognized standing. Applicants should have completed, with superior standing, an undergraduate course providing a broad liberal education, with a substantial core in the social sciences, particularly sociology, psychology, economics, and political science. (Students holding a bachelor's degree may be advised on admission to undertake some supplementary basic preparation, either prior to admission or between sessions.)

(b) Good health as certified by a physician.

(c) Personal qualifications which in the opinion of the School appear to warrant expectation of success in social work.

(d) Age between 21 and 35 years except in special circumstances.

2. SPECIAL STUDENTS

Full-time (General)

Part-time (Partial)

A limited number of mature persons who are not university graduates, but whose general background and experience in social work suggest ability to profit by work in the School, may be accepted as special students at the discretion of the Committee on Standings. Such students may be required to register in certain undergraduate courses of the Faculty of Arts and Science. A statement of standing for courses taken under examination may be obtained on request, but credit is not given towards a degree.

3. QUALIFYING STUDENTS

Full-time (General)

Part-time (Limited)

Those students who have (a) qualifications for becoming degree students, but who have not yet been accepted for degree status; or (b) those students who are not qualified for degree status, but who are in process of becoming qualified through meeting specified requirements.

ADVANCED STANDING

Courses: Students desiring to secure credit towards a degree for courses taken in other universities or schools of social work must submit official records with any applications for such credit. Each case will be dealt with on its merits.

Field Work: In most cases students may be given credit for field work undertaken prior to registration in the School. The amount of such credit will be determined after the School has had an opportunity of observing the student's performance in the field.

Decisions involving questions of advanced standing will be made by the Committee on Standings.

APPLICATION AND REGISTRATION

Prospective students wishing information about the profession, or about prerequisites, should communicate with the School, where a preliminary interview will be arranged.

Application for admission must be made in advance of registration. Since enrolment is limited and the admissions policy is selective, intending students are advised to apply by *April 1st* in the year during which they desire to enter the School. Early applications will receive preferential consideration. A personal interview is arranged, at the School whenever possible; otherwise an applicant may be requested to interview a person designated by the School. Application forms may be obtained from the School of Social Work, McGill University. Applicants who are not McGill graduates must submit a certified copy of their academic record beyond high school. Applications must be accompanied by a physician's certification that applicant has been examined and is in good health.

Registration: Students in the School of Social Work will register at the School, 3600 University Street, as indicated in the School Announcement (page 3304). Registration begins Wednesday, September 11th.

All students are admitted on probation. A student may be asked to withdraw if careful review of his progress suggests this to be advisable.

Students taking a full programme of courses in any term usually cannot expect to do the work of the School satisfactorily unless they give their full time to it.

PLAN OF STUDY—

REQUIREMENTS FOR THE MASTER OF SOCIAL WORK DEGREE (M.S.W.)

FIRST YEAR PROGRAMME

Basic courses in the following subjects are required of all candidates:

SOCIAL CASE WORK
SOCIAL GROUP WORK
HUMAN GROWTH AND BEHAVIOUR
COMMUNITY ORGANIZATION
THE SOCIAL SERVICES
SOCIAL RESEARCH
FIELD WORK

The programme of First year students is prescribed.

Requirements for the First year of work are:

1. Completion of the equivalent of five "full courses" in the above list.
2. Supervised field work (a) two days per week, September-April, (b) daily for six weeks following close of classes.

SECOND YEAR PROGRAMME

Admission to Second year standing will be restricted to those students who have obtained at least second class standing in the First year course or its equivalent and whose performance is satisfactory to the Committee on Standings. The pass mark in all courses will be 50 per cent in the First year and 65 per cent in the Second. A thesis satisfactory to internal and external examiners will be required. Permission to write supplemental examinations or to repeat courses will be granted only when the School so recommends.

In the Second year the student may elect to broaden and deepen his general preparation for the practice of social work or to concentrate his studies, to some extent, in a particular field of his choice.

At present the School prepares students for practice in the following fields:

FAMILY CASE WORK
CHILD WELFARE
MEDICAL SOCIAL WORK
PSYCHIATRIC SOCIAL WORK
COMMUNITY ORGANIZATION
PUBLIC WELFARE
SOCIAL GROUP WORK
SOCIAL RESEARCH
SOCIAL ADMINISTRATION

Students from Other Countries

The School is especially equipped to provide training for students planning to work in countries other than Canada and the United States.

Special courses are offered for such students (see Description of Courses) and the above plan of study is appropriately modified to meet their needs.

Housing and Town Planning

The plan of study may be modified in the Second year, by special arrangement, to permit students to adapt their social work training to the field of housing and town planning.

The degree requirements are:

1. Completion of the first year programme.
2. The equivalent of four additional "full courses".
3. Supervised practice.
4. Thesis.

FEES

The University reserves the right to make changes without notice in its published schedule of tuition, board and residence, and other fees if, in the opinion of the Board of Governors, circumstances so require.

(a) FULL-TIME STUDENTS

Fees for the Session, *each year:*

University Fee (including Students' Society Fee of $15.00).. $400.00

(b) PART-TIME STUDENTS

Fee for one full course (two terms)..... $100.00
Fee for one half course (one term)..... 50.00
Student activities fee for part-time students taking less than three courses..... 5.00

A student working for the degree on a part-time basis will not pay more than a total of $915.00 for the full two-year course, except when the thesis is not completed along with course and field work requirements.

Fees are due and payable at the Accounting Office immediately after registration.

When fees are paid by instalments, an instalment fee of $5.00 is charged. Special fees and penalties, and the regulations regarding payment and remission of fees, are listed in the General Information pamphlet included with this Announcement.

(c) OTHER FEES

A candidate for the Master's degree, who has completed his courses and his residence but has not completed his thesis, must pay a registration fee of $10.00 at the beginning of the session in which he intends to submit the thesis. Any student receiving thesis supervision from a member of the staff is considered to be in residence and must register for the session and pay a fee of $25.00.

Fees herein stated do not cover expenses such as carfare to and from field work, and small miscellaneous items such as materials for group work skills.

BURSARIES AND LOANS

A number of bursaries are available for the Session 1957-58.

Substantial financial assistance may be given under the Federal-Provincial Health Grants to students meeting certain specified conditions.

Similar assistance is also available through some Provincial Governments in Canada, and State Governments in the United States. Prospective students, other than those from the Province of Quebec, interested in obtaining such financial assistance, should make inquiry through their provincial or state government.

A limited number of bursaries, supported by private organizations, are available.

While awards are made only to students of attainment and promise, the financial needs of applicants will receive consideration. Inquiries should be addressed to the Director.

Loans are available from the Social Work Alumni and Southam Loan Funds; and from the Pi Beta Phi Loan Fund established for the use of students in financing their training or in meeting temporary or emergency needs.

DESCRIPTION OF COURSES

1a. SOCIAL CASE WORK I. First year (Half course). Principles and methods used in helping individuals and families meet personal and social needs through social agency resources. Significance of behaviour, evaluation of social data, process in interviewing, recording, and the professional relationship are considered. Illustrative case material and the field experience of class members will be used.

First term — *Professor Stevenson*

1b. SOCIAL CASE WORK I. First year (Half course). A continuation of Course 1a above.

Second term — *Professor Stevenson*

2. SOCIAL CASE WORK Ia. First year (Half course). A survey of principles and methods in social case work as a basic approach in social work. The relation of social case work to social group work. Case material is used.

For students not majoring in social case work.

First term — *Professor Moore*

3. SOCIAL CASE WORK WITH CHILDREN. Second year (Half course). The case work process in care and protection of children. Special needs of children living with natural parents, in foster homes, and in group settings.

First term

4a. ADVANCED SOCIAL CASE WORK. Second year (Half Course). A discussion course in which emphasis is placed upon the application of psychiatric theory to case work practice.

Prerequisites: Courses 1a, 1b, 5a and 5b.

First term

Professor Freeman

4b. ADVANCED SOCIAL CASE WORK. Second year (Half course). A continuation of Course 4a above.

Second term

Professor Freeman

5a. HUMAN GROWTH AND BEHAVIOUR. First year (Full course). The course will approach human growth and behaviour chronologically from conception to old age. Development at each stage involves consideration of the physical, socio-cultural and psychological determinants of the growth process as interacting systems. These systems are seen as they create optimal as well as deviant adaptations of behaviour.

First term.

Professors Kirk, Ross and Tuck

5b. HUMAN GROWTH AND BEHAVIOUR. First year (Half course). A continuation of Course 5a above.

Second term

Professors Kirk, Ross and Tuck

6. PSYCHIATRIC INFORMATION II. Second year (Half course). A discussion of clinical cases focused on the dynamics of behaviour in the neuroses and in the organic and functional psychoses. Etiological factors, examination methods, and treatment procedures. The contribution of the various schools of psychiatric thought to social work. Class work supplemented by clinical observations.

First term

Professors Lehmann and MacLeod

7. SOCIAL GROUP WORK I. First year (Half course). A survey of principles and methods in group work as a basic approach in social work. Description and analysis of agencies and types of organizations in which group relations and group process are emphasized. The course includes the discussion of the relation of group work to other types of social work, particularly case work.

For students not majoring in group work.

First term

8a. SOCIAL GROUP WORK II. First year (Half course). A study of the theories and principles of group work practice. The nature of the social process in organized groups and its value to the individual; group experience at varying age levels; the use of play and other media in relation to the needs and adjustment of the individual; the role of the leader in group work. A discussion of group situations based on group records. An analysis of agencies and their programmes. The interrelation of group work and other fields of social work.

First term

Professor Gifford

8b. SOCIAL GROUP WORK II. First year (Half course). A continuation of Course 8a above.

Second term *Professor Gifford*

9. SOCIAL GROUP WORK IIa. First year (Half course). A course required in connection with Social Group Work II planned to develop skill and understanding in the use of programme activities designed to meet the needs of individuals and ability to direct such activities to socially desirable ends. Consideration will be given to the fundamentals of music, traditional games, folk dancing, arts and crafts, and their adaptation to groups of various ages and types.

First and second terms *Professor Gifford*

10a. SOCIAL GROUP WORK III. Second year (Half course). An advanced course dealing with organization and leadership of various types of groups and the relation of these groups to the agency and community. Analysis of group records; agency functions in relation to leadership for staff, volunteers, and community; administrative and advisory aspects of group work.

Prerequisites: Courses 8a, 8b, 9.

First term *Professor Gifford*

10b. SOCIAL GROUP WORK III. Second year (Half course). A continuation of Course 10a above.

Second term *Professor Gifford*

11. SOCIAL GROUP WORK IIIa. Second year (Half course). A continuation of Social Group Work IIa with additional emphasis on dramatics and music, and their use with groups of various ages and types.

First and second terms *Mr. Rotman*

12. COMMUNITY ORGANIZATION I. First year (Half course). A study of methods of community organization. The establishment of constructive relationships between social work organizations and other forces in the community. Discussions of relationships between public and private, local, provincial, and national social agencies. Organization and problems of councils of social agencies, financial federations, etc.

Second term *Professor Moore*

13. COMMUNITY ORGANIZATION II. Second year (Half course). An advanced course in problems and techniques of community organization.

Second term

14. ADMINISTRATION OF SOCIAL AGENCIES. Second year (Half course). The administrative process within the social agency; functions and interrelationships of board of directors, executive, and staff. Committees. Financial administration and budgeting; office management, etc.

Second term *Mr. Weiss*

15. GOVERNMENT AND SOCIAL WORK. First year (Half course). The Canadian nation; land, resources, population. Economic development. Political institutions and administrative structure. Distribution of welfare functions among national, provincial, and municipal authorities. Constitutional problems and remedies proposed. Public finance and taxation.

First term

16a. PUBLIC WELFARE I—THE SOCIAL SERVICES. First year (Half course). A survey course, designed primarily for First year students. Historical background of modern social services both public and private. Analysis of major social problems today, and of the services developed to meet them. Examination of policies in such areas as public assistance, social insurance, child welfare, correction, medical care, and other health services. Interrelationships between public and private social services. Administration framework in relationship to plans for social security.

First term *Professor Lightman*

16b. PUBLIC WELFARE I—THE SOCIAL SERVICES. First year (Half course). A continuation of Course 16a above.

Second term *Professor Lightman*

17. PUBLIC WELFARE II(a)—CHILD WELFARE. Second year (Half course). Historical development of child welfare services in England, United States, and Canada. Interrelationships between public and private services. Examination of existing child welfare legislation with particular reference to the care of neglected and dependent children. Problems of organization and administration.

First term *Professor Griffiths*

18. PUBLIC WELFARE II(b)—SOCIAL INSURANCE. Second year (Half course). Historical background and development. Examination of social insurance systems today. Problems of administration. Relationship to public assistance and social agencies. Problems of integration with public assistance programme.

First term

19. PUBLIC WELFARE II(c)—PUBLIC ASSISTANCE. Second year (Half course). Examination of essentials in a modern public assistance programme. Categorical aid. Relationship to health services and to private social agencies. Problems of organization and administration. Problems of integration with social insurance.

Second term

20. PUBLIC WELFARE II(d)—PUBLIC WELFARE ORGANIZATION AND ADMINISTRATION. Second year (Half course). Examination of principles of public administration in a public welfare setting. Structure of major Canadian public welfare organizations. Problems of reorganization. Administrative process.

Second term

22. MEDICAL INFORMATION II. First or Second year (Half course). Further consideration of the rehabilitation problems of adults and children in relation to selected disease entities.

Second term *Dr. Brabander, Professor Tuck, and medical lecturers*

23a. MEDICAL SOCIAL WORK. Second year (Half course). A course designed to meet the needs of Second year students who wish to specialize in medical social case work.

This term is devoted to a consideration of the practice of social case work in the medical setting.

First term *Professor Tuck*

23b. MEDICAL SOCIAL WORK. Second year (Half course). A continuation of Course 23a above.

This term is devoted to a consideration of the organization of hospital social service departments; social implications of various administrative services within the hospital; participation of the medical social worker in medical and nursing education; function of the medical social worker in extramural programmes for health and medical care; growth and development of medical social work.

Second term *Professor Tuck*

24. NUTRITION AND COST OF LIVING. Second year (Half course). Elements of nutrition. Essentials of an adequate diet with special reference to the properties of the commoner food materials and their cost. Some consideration of cost of living standards at the health and decency level.

25. LEGAL ASPECTS OF SOCIAL WORK. Second year (Half course). The essential principles of law and their relation to problems encountered by social workers in the performance of their duties.

First term

26. PUBLIC RELATIONS. Second year (Half course). A study of the interpretation of social work to the public. Publicity, methods and media. The role of the volunteer. Students participate in preparation of material for newspaper publication, radio, reports, etc.

First term

27. HISTORY OF SOCIAL WORK. Second year (Half course). Social work seen in perspective through a study of charity, law, the industrial revolution, and subsequent nineteenth century social movements. Persons and processes active in the antecedents, origins, and development of social work are observed in relation to the social history and thought of their respective periods.

Professor Moore

28. SOCIAL RESEARCH METHODS I. First year (Half course). An introduction to the fundamental principles of research in the field of social work and allied social investigation.

Second term *Professor Younge*

29. SOCIAL RESEARCH METHODS II. Second year (Half course). Elementary statistical methods as applied to social problems. The assembly of materials, selected statistical techniques, and presentation of descriptive tables and simple graphs. The interpretation of census and other official statistics relating to family living, vital statistics, and dependency problems in Canada.

First term *Professor Younge*

30. RESEARCH SEMINAR. Second year (Half course). Individual and group conferences dealing with student theses.

First and second terms *Professor Younge and Project Advisers*

31. SEMINAR IN SOCIAL WORK. Second year (Half course). A discussion course presenting typical problems encountered in various fields of social work.

To be arranged. *Members of the Staff*

32. INTRODUCTION TO SUPERVISION (Half course). A discussion of basic concepts implicit in supervision as an administrative and teaching process. Open to students who are having or who have had experience as supervisors. *Professor Freeman*

33. SEMINAR IN SUPERVISION (Half course). An advanced course. Supervised practice may be arranged concurrently.

Prerequisite: Course 32 or substantial supervisory experience.

Professor Freeman

34. INTERNATIONAL WELFARE AND COMPARATIVE SOCIAL LEGISLATION (Half course). A course designed particularly for students from countries other than Canada and the United States, covering the role and scope of international welfare organization and practice, and welfare legislation, in selected geo-social areas, and principles and practices applicable to the development and implementation of welfare legislation.

Professor Lightman

35. INTERNATIONAL SEMINAR IN SOCIAL WORK (Half course). A discussion course designed particularly for students from countries other than Canada and the United States, and based upon intensive study of and reports on selected countries; with particular emphasis on identifying major social problems, understanding the social forces bearing on these problems, and considering appropriate professional approaches to aid in their solution. *Professor Lightman*

36. ADVANCED INTERNATIONAL SEMINAR IN SOCIAL WORK (Half course). An extension of Course 35. *Professor Lightman*

FACULTY OF GRADUATE STUDIES AND RESEARCH

Related courses in the Faculty of Graduate Studies and Research may be used, with permission, to meet the special interests of students possessing the necessary prerequisites.

EXTENSION COURSES

1957-58

Extension courses will be offered at times convenient to employed persons.

Special announcements will be made from time to time through the Department of University Extension or the School.

McGill University

Montreal

School of Physical and Occupational Therapy

Davis House

1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. For limited distribution.)

The Calendar (available for distribution only to libraries and officials of certain institutions.)

School of Physical and Occupational Therapy

The School of Physical and Occupational Therapy is under the administrative jurisdiction of the Faculty of Medicine.

ADMINISTRATIVE OFFICERS

F. Cyril James, Chevalier de la Légion d'Honneur, Ph.D., D.Sc., D. de L'U., D.C.L., LL.D., F.R.S.C. *Principal*

David L. Thomson, M.A., Ph.D., LL.D., F.C.I.C., F.R.S.C. *Vice-Principal*

Lloyd G. Stevenson, M.D., Ph.D. *Dean of the Faculty of Medicine*

Guy H. Fisk, B.A., M.D., C.M., D.T.M. & H. (Eng.) *Director and Associate Professor*

Helen M. Gault, B.Sc. (P. & O.T.), T.M.M.G., T.M.E. (Eng.) *Assistant Professor*

William Bentley, C.G.A., F.C.I.S. *Bursar*

T. H. Matthews, M.A., LL.D. *Registrar*

A complete list of the teaching staff of the University, including the School of Physical and Occupational Therapy, is printed as a separate Announcement, which may be obtained from the Registrar's Office.

SCHOOL OF PHYSICAL AND OCCUPATIONAL THERAPY OFFICE

DAVIS HOUSE

3554 Drummond Street,

Montreal 2

Telephone — MA 9181

GENERAL INFORMATION

The aim of the course in Physical and Occupational Therapy is to provide a supply of adequately trained graduates who will be qualified to work as physical and occupational therapists in hospitals, institutions, and private homes.

Physical Therapy is the use of heat, light, water, electricity, and mechanical agents, including massage and remedial gymnastics, in the treatment of injury and disease. Occupational Therapy is the specific application of activities in the treatment of injury or disease. The media used include arts, crafts, recreation, prevocational and rehabilitation training. Physical and occupational therapists are trained in the use of these healing agents under the direction of a physician, such treatments being prescribed by the physician and carried out according to prescription. There is a steadily growing demand for qualified physical and occupational therapists in both civilian life and the armed services. In the armed forces physical and occupational therapy sisters are given the same rank and commission as nurses. In civilian life they work in hospitals, industries, clinics, and in private homes, under the direction of doctors.

DEGREE COURSE - B.Sc. (PHYSICAL AND OCCUPATIONAL THERAPY)

The full curriculum consists of five academic years at the University. During these years the student will take an organized course in pure science together with professional training in Physical Therapy and Occupational Therapy. Throughout the course ample provision has been made for practical hospital instruction, in addition to the University training. This hospital training is carried out at the Montreal Children's Hospital, the Montreal General Hospital, the Royal Victoria Hospital, the Verdun Protestant Hospital, the Queen Mary Veterans' Hospital, and the Royal Edward Laurentian Hospital, in the departments of Physical Medicine.

The degree student will take Anatomy as one continuation subject and at the beginning of the Fourth year will choose between Physiology or Psychology, as the second continuation subject.

Upon satisfactory completion of the entire course, a Degree will be granted by the University. The Degree offered is Bachelor of Science (Physical and Occupational Therapy), B.Sc.(P.&O.T.)

DIPLOMA COURSE IN PHYSICAL THERAPY

Students will take the same First and Second years as the Degree Course students. The Third year students will take:

ANATOMY 2
ELECTROTHERAPY 2 and 3
CLINICAL THERAPY 2
PHYSICAL THERAPY 2 and 3A
Hospital practice 346 hours
PHYSIOLOGY 22

DIPLOMA COURSE IN OCCUPATIONAL THERAPY

Students will take the same First and Second years as the Degree Course students. The Third year students will take:

ANATOMY 2
CLINICAL THERAPY 2
PHYSICAL THERAPY 3A (half course)
OCCUPATIONAL THERAPY 2A, 2B, 3A, and 4B, 4CII
Hospital practice 346 hours
PHYSIOLOGY 22

POSTGRADUATE TRAINING

A two-year period of postgraduate study is available in either Physical or Occupational Therapy to meet the teaching requirements of the Associations.

ADMISSION

Women students only are admitted to the course.

ACADEMIC REQUIREMENTS

For admission to the First year

Junior Matriculation in the subjects required for admission to the B.Sc. course in the Faculty of Arts and Science with an average of at least 70%.

For admission to the Second year

Senior Matriculation or one year of college work with satisfactory standing in English Literature, English Composition, Mathematics (Algebra and Trigonometry), Physics, Chemistry, and Biology.

Candidates should address all applications to:

Professor Guy H. Fisk,
Director, McGill School of Physical and
Occupational Therapy,
3554 Drummond St.
Montreal 2.

The intending student should state on the application to which year she is applying.

PHYSICAL REQUIREMENTS

Candidates, in order to qualify for admission, must satisfactorily pass a complete physical examination.

REGISTRATION

Registration will take place for the—

1st year, Tuesday, September 17th;
2nd year, Wednesday, September 25th;
3rd year, Wednesday, September 4th;
4th year, Wednesday, September 4th;
5th year, Wednesday, September 4th.

FEES

The fees are $450.00 per annum, including Students' Society fees. Fees are due and payable at the Accounting Office during the hours of 9 a.m. to 4 p.m., on Registration Days. If desired, fees may be remitted by mail on or before the due dates. They may be paid in two instalments, in which case there is a charge of $5.00. The second instalment is due on or before January 15th. When fees are paid in two instalments, half the total fee is payable with each instalment.

Students registering late pay their fees at the time of registration, failing which they become subject to the provisions of the following paragraph:

Immediately after the prescribed dates for the payment of fees the Chief Accountant will send to the Director of the School a list of the registered students who have not paid their fees. The Director will thereupon suspend them from attendance at classes until such time as the fees are paid or a satisfactory arrangement is made with the Chief Accountant.

Supplemental examination fees are $10.00 for each paper.

Penalty for late payment of fees.....$2.00

Late registration fee.....$5.00

PRIZES

The Lieutenant Governor's Silver Medal is awarded to the student with the highest standing throughout the degree course.

The Canadian Physiotherapy Association presents a Book Prize annually to the student with the highest standing in the Final year of the degree course.

The Quebec Society of Occupational Therapy Book Prize is awarded annually to the student with the highest standing in practical application of Occupational Therapy in the Third year of the Diploma course.

The Dr. F. G. Finley Book Prize is presented annually to the student with the highest standing in the Third year of the Physical Therapy Diploma course.

SCHOLARSHIPS ANNOUNCEMENT

A complete list of scholarships and bursaries and the regulations governing the various loan funds are given in the Announcement of Scholarships, Bursaries, and Loan Funds which may be obtained from the Registrar's Office.

EXAMINATIONS

The pass mark in any course is 50%.

At the conclusion of each course examinations will be held and the student graded as follows:

1st class	—	80 - 100
2nd class	—	65 - 79
3rd class	—	50 - 64
Failure	—	Below 50

In reporting the grading, the names of those students who obtain First Class standing will be arranged in order of merit. In all other grades the arrangement will be alphabetical.

The quality of the English used by a candidate will be taken into account in all examinations.

All results of the examination will be released by the Director's Office after due consideration by the Faculty. No examination results will be communicated by any other channel.

Upon payment of a fee of $10.00 to the Accounting Office, a student may apply in writing to the Director to have an examination paper re-read. This must be done not more than 30 days after the examination results are published.

A student who fails in one subject will be required to pass a supplemental examination during the following September. Written application to write a supplemental examination must be received at the Director's Office by August 15th. A fee of $10.00 for each supplemental paper is payable to the Accounting Office as soon as the application has been approved.

All conditions must be removed by May in the following session. If a student fails at this time she will not be permitted to proceed further in the course.

A student who fails in more than one full course, may at the discretion of the Committee of the School of Physical and Occupational Therapy, with the concurrence of the Promotion Committee of the Faculty of Medicine, be required to withdraw from the School.

A student who has been permitted to repeat a year is required to make at least a Third Class standing. If this standing is not attained the student will not be permitted to continue the course.

No year may be repeated more than once, nor may a student repeat a subsequent year. By special recommendation of the Committee of the School of Physical and Occupational Therapy, with the concurrence of the Promotion Committee of the Faculty of Medicine, a student may be permitted to carry one condition. If the student fails to remove this condition by the end of the session she will revert to the previous year.

A student, who for reasons of illness or family affliction, has been unable to write one or more sessional examinations, may receive permission to write September supplementals in their stead. Application to do so must be made to the Director before August 15th, but no fee will be charged.

The Faculty reserves the right to require the withdrawal of any student at any time if in the opinion of her instructors she is incompetent.

LICENCE TO PRACTISE

Certain provinces of the Dominion of Canada and states of the United States of America require that those intending to practise physiotherapy within their borders comply with special provincial or state licensing requirements. Intending students should therefore consult with the province or state authorities before registering.

In Canada, further details can be obtained from the Canadian Physiotherapy Association, 8 Bedford Road, Toronto 5, Ontario.

In the United States, communicate with the American Physical Therapy Association, 1790 Broadway, New York 19, N.Y.

The School of Physical and Occupational Therapy, McGill University, is registered with the University of the State of New York.

ASSOCIATION MEMBERSHIP

The Canadian Physiotherapy Association and the Canadian Association of Occupational Therapy have special postgraduate interning requirements for Diploma students.

In order to join the Canadian Physiotherapy Association graduates are required to do four months' postgraduate interning.

In order to join the Canadian Association of Occupational Therapy graduates are required to do six months' postgraduate interning.

COURSES OF INSTRUCTION

FIRST YEAR

ENGLISH 100.—LITERATURE (Fac. Arts and Sci.) (Full course).

3 hours of lectures and conferences.

ENGLISH 100C.—ELEMENTARY COMPOSITION (Fac. Arts and Sci.)

1 hour weekly throughout the session.

MATHEMATICS 111—TRIGONOMETRY, ALGEBRA, ANALYTICAL GEOMETRY (Fac. Arts and Sci.) (Full Course).

PLANE TRIGONOMETRY. Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformation of sums and products, logarithmic solution of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

ALGEBRA. Variation, progressions, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

ANALYTICAL GEOMETRY. The analytic geometry of the straight line and circle.

3 hours.

PHYSICS 11.—GENERAL COURSE (Fac. Arts and Sci.) (Full course). A general course covering the elementary portions of mechanics, sound, heat, magnetism, electricity, light, and atomic physics. Simple applications of fundamental principles to well known phenomena are explained with the aid of demonstrations, laboratory work, and numerical examples.

3 hours. Laboratory (11L): 2 hours.

CHEMISTRY 11.—GENERAL CHEMISTRY (Fac. Arts and Sci.) (Full course). General survey of chemical theory and of inorganic chemistry, including atomic and kinetic theories, equivalent, atomic and molecular weights, gases, liquids, solids, solutions, ionization, oxidation and reduction, velocities of reactions, chemical equilibrium, heats of reaction, electromotive series, periodic table, preparation and properties of important elements and compounds.

3 hours lectures, and 3 hours laboratory.

BOTANY 11a. GENERAL BOTANY. THE SEED PLANT (Fac. Arts and Sci.) (Half course). The structure, functioning, and reproduction of higher plants, with an introduction to the major families of flowering plants and their economic significance.

First term: 2 hours lecture, and 3 hours laboratory.

BIOLOGY 100.—THE HIGHER PLANTS AND ANIMALS (Full course). An introductory course in Biology, covering the higher plants and animals. The course is given in two sections. Section X considers the plants in the first term and the animals in the second term. Section Y considers the animals in the first term and the plants in the second term.

2 hours lectures and 3 hours laboratory.

SECOND YEAR

CHEMISTRY 22.—ORGANIC CHEMISTRY (ELEMENTARY, WITHOUT LABORATORY) (Fac. Arts and Sci.) (Full course). Special characteristics of carbon and its compounds; the principles of functionality, homology, and isomerism; nomenclature, occurrence, preparation, physical and chemical properties, and uses of the more important organic compounds.

2 hours, one tutorial.

ANATOMY 1.—THE ANATOMY OF THE AXIAL SKELETON AND OF THE UPPER AND LOWER EXTREMITY (Fac. Medicine). A course designed to familiarize the student with the basic framework of the head, neck, and trunk, and the detailed anatomy of the arm and leg.

3 hours lecture, and 2 hours laboratory. *Professor C. P. Martin and Staff*

PSYCHOLOGY 21.—Introduction to Psychology (Full course). A biologically oriented outline of the modern approach to psychology.

2 hours and 1 weekly conference. *Professor Hebb and Staff*

CLINICAL THERAPEUTICS 1. Elementary consideration of disease processes commonly seen in patients treated by physical and occupational therapists.

1 hour lecture. *Professor Fisk*

PSYCHIATRY 1. A course in psychiatry, with introductory lectures in normal psychology as a basis for the study of psychiatric disorders treated by physical and occupational therapists.

1 hour lecture. *Dr. H. A. Bowes*

PHYSICAL THERAPY 1.

A. A course covering the requirements of students in Physical and Occupational Therapy in body mechanics, kinesology and remedial gymnastics and their application to the more common disabilities.

2 hours lecture, and 3 hours laboratory. *Miss E. P. Aston*

B. A course of massage and the application to medical and surgical conditions.

4 hours laboratory. *Miss M. F. Tremain*

C. A theoretical and practical course in the treatment, where applicable, by physical means, of diseases of the respiratory, cardio-vascular, abdominal, and skeletal systems. This course is correlated with the lectures in clinical therapy and occupational therapy.

2 hours lectures, and 3 hours laboratory. *Mrs. Gault*

ELECTROTHERAPY 1. A theoretical and practical course in the physical principles and the details of technique of direct and low frequency currents for therapeutic purposes.

1 hour lecture, and 1 hour laboratory. *Miss J. Ward*

OCCUPATIONAL THERAPY 1.

The history, development and scope of occupational therapy. A study of the basic principles of occupational therapy applied to fields of psychiatry and paediatrics.

1 hour lecture. *Mrs. C. Federer*

An introduction to the basic principles of occupational therapy used in the treatment of physical disabilities.

1 hour lecture. *Miss E. N. Dunkin*

Leatherwork, pottery, copper tooling and glovemaking.

A study of miscellaneous media having a wide therapeutic application.

Recreation—a study of individual, group and remedial games.

1 hour lecture and 4 hours laboratory.

Miss E. N. Dunkin, Mrs. C. Federer, and Miss R. Atkins

HOSPITAL PRACTICE—112 hours.

THIRD YEAR

ANATOMY 2.—SYSTEMATIC ANATOMY. Lectures and demonstrations designed to provide a knowledge of the anatomical structure of the vital organs by systems.

2 hours lectures, and 2 hours laboratory.

Professor C. P. Martin and Staff

PHYSIOLOGY 22.—ELEMENTARY PHYSIOLOGY (Fac. Arts and Sci.) (Full course). For Second and Third years Arts and Science students. An account of general physiological principles, combined with an introduction to basic techniques, intended primarily for students who will specialize in one of the biological sciences.

2 hours lecture, and 3 hours laboratory.

CLINICAL THERAPEUTICS 2. A detailed consideration of the diseases and injuries requiring treatment with physical and occupational therapy. The application of treatment to specific symptoms will be dealt with in detail. Specialists in various branches of medicine and surgery will give lectures.

2 hours lectures. *Professor Fisk and Staff*

PHYSICAL THERAPY 2. A practical and theoretical course including massage and remedial exercises, hydrotherapy, progressive resistance and suspension exercises, for medical and surgical conditions, from early treatment to rehabilitation.

116 hours. *Miss E. P. Aston and Miss M. F. Tremain*

ELECTROTHERAPY 2. A course in theory and application of ultra-violet radiations and diathermy (high frequency) apparatus.

1 hour lecture, and 2 hours laboratory. *Miss J. Ward*

OCCUPATIONAL THERAPY 2.

A. A study of the principles of occupational therapy used in the treatment of physical disabilities with emphasis on the adaptation of equipment for medical and surgical conditions.

1 hour lecture. *Miss E. N. Dunkin*

B. A course in occupational therapeutic techniques and their application to specific disabilities.

Woodwork, metalwork, weaving, needlework, rugwork and cordwork.

130 hours. *Miss E. Dunkin, Mrs. C. Federer, Miss R. Atkins*

HOSPITAL PRACTICE—424 hours.

FOURTH YEAR (DEGREE COURSE)

BIOCHEMISTRY 31.—GENERAL PHYSIOLOGICAL CHEMISTRY (Fac. Arts and Sci.) (Full course). A general survey of the chemistry of carbohydrates, fats, steroids, and proteins, their transformations in the body, and the composition of the body in health and disease.

ANATOMY 3.—Arm and Leg.

2 hours lectures, 4 hours laboratory.

Professor C. P. Martin and Staff

PSYCHOLOGY 34A.—DYNAMICS OF BEHAVIOUR (Half course). Facts and theories of emotion and motivation.

First term: 2 hours and one weekly conference. *Professor Bindra*

34b. THEORY OF PERSONALITY (Half course). Consideration of current theories of personality, normal and abnormal.

Second term: 2 hours and one weekly conference. *Professor Bindra*

BACTERIOLOGY 4.—ELEMENTARY BACTERIOLOGY (Fac. Arts and Sci.) (Full course).

2 lectures per week, and 2 laboratory periods. *Dr. R. Reed*

SOCIOLOGY 21Z.—INTRODUCTION TO SOCIOLOGY (Full course).

3 hours.

PHYSICAL THERAPY 3.

A. A course in the theory and practical treatment by physical and occupational therapy of neurological diseases.

2 hours lectures. *Members of the Staff*

B. Discussion of the latest comparative methods of treatment by physical means.

2 hours per week. *Mrs. Gault*

OCCUPATIONAL THERAPY 3.

A. A course in therapeutic techniques and their application to specific disabilities.

Puppetry and soft toy making.

Art—instruction in the use of water colours, and oil paints.

2 hours per week.

B. Bookbinding and book repair. Leather carving.

2 hours per week. *Miss C. Federer and Miss R. Atkins*

HOSPITAL PRACTICE—240 hours.

FIFTH YEAR (DEGREE COURSE)

PHYSIOLOGY 31.—INTERMEDIATE PHYSIOLOGY (One and one half courses). A more detailed survey of the subject, with special emphasis on the physiology of man.

3 hours lectures, 3 hours laboratory and seminar.

ANATOMY 4. Neuroanatomy.

3 hours. *Professor C. P. Martin and Staff*

PSYCHOLOGY 42. SOCIAL PSYCHOLOGY (Full course). Theories of social psychology; social aspects of general psychology; nature and development of group membership; social attitudes, their measurement and modification.

3 hours. *Professor Lambert*

EDUCATION 1. General Principles of Education.

3 hours.

CLINICAL THERAPY. Review of the more important conditions treated by physical and occupational therapy.

1 hour. *Professor Fisk*

PHYSICAL THERAPY 4. An advanced course of clinical teaching of conditions where physical therapy and electrotherapy are applicable.

2 hours per week. *Mrs. Gault and Miss E. P. Aston*

OCCUPATIONAL THERAPY 4.

A. A study of rehabilitation with emphasis on job analysis, work testing, and pre-vocational assessment.

1 hour per week. *Miss E. N. Dunkin*

B. A course in departmental management, records, and bookkeeping.

6 hours. *Miss R. Atkins*

C. A course in special techniques and their adaptations.

I. Plastics—construction of self-help equipment.

II. Cane, reed, and raffia work.

40 hours. *Mrs. C. Federer and Miss R. Atkins*

HOSPITAL PRACTICE—500 hours.

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Evening Courses 1957-1958

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FOREWORD

The McGill Department of University Extension has become a university within a university. In 1950, 4,200 students registered; in 1956 there were nearly 7,300, an increase of 73 percent. In 1950 there were 126 courses; in 1956, 172, an increase of about 14 percent. While the majority of the evening students are men, the percentage of women students is increasing each year. Each year, also, the number of French-speaking students increases.

The age distribution of evening-course students runs all the way from 17 to 70 years, and, while some who come have not had the advantages of a high school education, 95 percent have at least high school graduation and 42 percent are university graduates.

Apart from a few engineering courses which may be taken for graduate credit, none of these evening courses leads to a degree. People come because they want more education, more training, more knowledge and skill in particular fields. Formal education is terminated with high school or college graduation but education need never end. Indeed, in these days of rapidly changing situations and developing technology, he who vegetates, even briefly, is lost. The struggle to keep up is difficult; the struggle to catch up, after one has fallen behind, can be won only at the cost of much time and effort.

It is the aim of the Extension Department to provide for the continuing educational needs of the Montreal community. We welcome you to our classes and we appreciate your suggestions for improving our offerings. We hope that in this year's program you will find what you need.

F. S. Howes, Ph.D., P.Eng.,
Director of University Extension.

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GENERAL INFORMATION

REGISTRATION.—You may register by mail, starting September 3rd.

Please use the enclosed card, fill in all four sections, and mail it, with your cheque or money order (payable to McGill University), to the Extension Office.

ALL of the information asked for on the card—your address, telephone numbers, employer, educational background, etc.—is important to us in conducting the program and in planning for future courses. If we do not have your telephone number, we cannot notify you of the cancellation of a lecture. We would appreciate your cooperation.

Although registration by mail is advisable, students may register at the University during the day or evening, as follows:

Accountancy Students.—See page 3935.

Other Students.—

Day Registration: *Third Floor*, Dawson Hall (East Wing, Arts Building), 9 a.m. to 4 p.m., Monday to Friday inclusive, September 9th to October 21st.

Evening Registration: *Ground Floor* (Registrar's Office), Dawson Hall, 6:30 to 8:30 p.m., Mondays and Wednesdays only, September 16th to October 21st.

First term registration closes November 20th, and second term registration closes February 12th.

LIMITED CLASSES.—In some of the courses as, for example, language classes, in which the progress of the student is dependent on his participation and the individual attention of the instructor, the size of the class is limited. In such cases, enrolment is on a "first come, first served" basis. It is advisable, therefore, to register early.

FEES.—The fee as indicated for each course is payable in advance, at time of registration. If, after the first lecture, you find that the course seems unlikely to meet your needs, a refund of the whole fee may be obtained by presenting your Student card at the Extension office between the hours of 9 a.m. and 4 p.m. *No refunds will be made after the date of the second lecture in the course.* If refund by mail is desired, the Student card must reach the Extension office *before the second lecture* and three weeks be allowed by the student for receipt of refund cheque.

CANCELLATION OF COURSES.—The student fee charged for these evening courses is essentially what it costs to put them on, assuming a certain minimum registration. If the registration in a course is less than the required minimum, the Committee reserves the right to cancel the course and refund fees.

If you are particularly anxious to take a course, may we suggest that you seek to interest your friends in it in order to ensure that at least this minimum registration is obtained.

EXAMINATIONS.—An examination, optional to students, will be available in the majority of courses. A certificate will be supplied to successful candidates. The pass mark is 50 per cent unless otherwise indicated.

All supplemental examinations will be held during the last week in August. Written application should be made, not later than August 1st, to the Extension Department for all supplemental examinations with the exception of Accountancy; for Accountancy supplementals, see page 3936. The fee is $10 for each supplemental examination and must accompany application.

TEXT BOOKS.—All required text books and some of the suggested reference texts may be purchased at The McGill University Book Store, which is open Monday to Friday, from 8:30 a.m. to 5 p.m., and on Saturday from 9 a.m. to noon.

From September 23rd to October 24th inclusive, text books will be available *only* at the branch of the Book Store located in the Arts Building basement; this branch store will be open, *Monday to Thursday, from 8:30 a.m. to 8.15 p.m.*

After October 24th, the text books will be available only in the main store on University Street.

UNIVERSITY LIBRARY.—On payment at the Redpath Library of a fee of $5.00, which is not refundable, an Extension student may use the Redpath Library from October 1st to May 1st of the following year, irrespective of whether the course in which the student is registered runs for one term or both terms.

THANKSGIVING HOLIDAY.—No classes will be held on Monday, October 14th.

CHRISTMAS HOLIDAYS.—The last lecture before Christmas will be on Thursday December 19th. The first lecture in 1958, in continuing courses, will be on Monday, January 6th.

For new courses beginning in January, ask in December for special announcement.

EXTENSION OFFICE.—The Extension Office is located in Room 450, Dawson Hall, (East Wing of Arts Building).

PARKING.—Prospective students should note that no student parking is permitted on the Campus in the evening.

TELEPHONE—VI. 9-9181, Local 304 (before 5 p.m.)

SECTION A

NON-TECHNICAL COURSES

DRAWING AND PAINTING, ELEMENTARY (non-professional). Professor Guy Viau, Department of Fine Arts. Fee $25.00 per term of 10 periods of 2 hours. Classes limited. Studio: 3450 Drummond Street.

Neither talent nor previous experience is required for these classes which are intended for adults. Experience will be acquired in drawing and painting from life and still life. The course is not one of formal instruction; therefore each person is encouraged to approach the artistic problem with the degree of insight he has and develop this as far as he is able. All materials are supplied except brushes.

A1. First term, Mondays, 8 p.m., beginning October 7th.

A3. Second term, Mondays, 8 p.m., beginning January 20th.

DRAWING AND PAINTING, INTERMEDIATE (non-professional). Professor Guy Viau. Fee $25.00 per term of 10 periods of two hours. Classes limited. Studio: 3450 Drummond St.

This course is similar to the elementary course and is a continuation of it. Applicants must have had some introductory non-professional instruction, at McGill or elsewhere. All materials will be supplied with the exception of brushes.

A2. First term, Thursdays, 8 p.m., beginning October 10th.

A4. Second term, Thursdays, 8 p.m., beginning January 23rd.

A5. **HISTORY AND APPRECIATION OF ART I.** Professor Winthrop O. Judkins, Department of Fine Arts. 10 lectures of 1½ hours, Thursdays at 8 p.m., beginning October 10th. Arts Building. Fee $15.00.

This course consists of a preparatory analysis of the work of art as a visual medium of expression, followed by a discussion of the principal epochs in the history of painting, East and West, up to the beginning of the modern movement. Slides and other illustrative materials will be used throughout the course.

A6. **HISTORY AND APPRECIATION OF ART II.** Professor Winthrop O. Judkins. 10 lectures of 1½ hours, Thursdays at 8 p.m., beginning January 23rd. Arts Building. Fee $15.00.

In this course a study will be made of the meaning of Modern art, and of the character of the Modern movement as radical change and evolutionary progression in the continuity of art history. *Enrollment in this course is limited to those who have taken History and Appreciation of Art I.*

A7. THE STORY OF MUSIC.—Professor Helmut Blume, Faculty of Music. 10 lectures of 1½ hours, Tuesdays at 8 p.m., beginning January 21st. Conservatorium of Music, 3450 Drummond Street. Fee $15.00.

In this course the lecturer surveys the development of music from the early Christian era to the present: Gregorian Chant, early polyphony, minstrels and troubadours, the vocal polyphony of the Renaissance, beginnings of instrumental music, inception of opera, Baroque, Classical Period, Romanticism, national schools of composition, Impressionism, Moderns. Illustrated with recorded examples. *Text:* Curt Sachs, *Our Musical Heritage* (Prentice-Hall).

A9. INTRODUCTION TO ENGLISH LITERATURE I. Mr. W. T. Booth, Department of English. 10 lectures of 1½ hours, Thursdays at 8:15 p.m., beginning October 10th. Arts Building. Fee $15.00.

This course is designed to acquaint the student with the historical development and social backgrounds of English literature. Selections from the major authors will be read and discussed in class. The work in the first term will trace the development of English literature from its beginnings to the end of the 17th Century.

A10. INTRODUCTION TO ENGLISH LITERATURE II. Mr. W. T. Booth, 10 lectures of 1½ hours, Thursdays at 8:15 p.m., beginning January 23rd. Arts Building.

In this series the development of English literature from the 18th Century to the present day will be considered, with special emphasis on the contemporary period.

LAW FOR THE LAYMAN. These courses are intended to cover in a very general and non-technical manner various legal problems which the ordinary citizen is apt to meet. The lecturer will endeavour to point out the problems and give certain suggestions as to what they really mean and how they should be dealt with.

A11. LAW FOR THE LAYMAN I. Mr Alexander McT. Stalker, Lecturer in the Faculty of Law. 10 lectures of 1½ hours, Tuesdays at 8:15 p.m., beginning October 8th. Arts Building. Fee $15.00.

This course will deal briefly with the system of law obtaining in the Province of Quebec; the different courts in the Province; what is involved in a lawsuit; the functions of the lawyer and his relationship to his client; ways of conducting business (partnership, corporations, etc.) and their advantages and disadvantages; registration of businesses; agency; some brief comments on taxation and bankruptcy; elements of obligations and contracts and some comments on negligence and its results.

A12. **LAW FOR THE LAYMAN II.** Mr. Alexander McT. Stalker. 10 lectures of 1½ hours, Tuesdays at 8:15 p.m., beginning January 21st. Arts Building. Fee $15.00.

This course will deal particularly with the family, its status and members; marriage and divorce; property in the family; married women in the Province of Quebec; life insurance; gifts; estates and wills; succession duties; buying Real Estate, suggestions to follow and things to watch for.

CURRENT EVENTS. Professors Michael Brecher and Keith Callard, Department of Economics and Political Science. Fee $15.00 per term of 10 lectures of 1½ hours. Physical Sciences Centre, 3450 University Street.

In these courses each lecture will be devoted to a problem of current public importance, and an attempt will be made to set contemporary events in their proper historical context and perspective. Opportunity will be provided for class discussion at each lecture.

A13. First term, Wednesdays at 8:15 p.m., beginning October 9th.

A14. Second term, Wednesdays at 8:15 p.m., beginning January 22nd.

A15. **AFRICA TODAY.** Professor R. C. Pratt, Department of Economics and Political Science. 10 lectures of 1½ hours, Tuesdays at 8 p.m., beginning October 8th. Arts Building. Fee $15.00.

This course surveys the political problems of Africa today and the solutions being attempted in the Union of South Africa, West Africa, East and Central Africa and the French territories.

A16. **INTRODUCTION TO SOCIOLOGY.** Mrs. Colette Carisse, Department of Sociology and Anthropology. 10 lectures of 1½ hours, Wednesdays at 8:15 p.m., beginning October 9th. Arts Building. Fee $15.00.

Modern societies create special problems for democratic organization. Attention will be given in the course to such problems as control *vs.* freedom, individualism *vs.* social welfare, cultural differences *vs.* unity. Problems of city life, of ethnic groups, race prejudice, social movements and social change will be considered. The course will provide students with insight into ideas and methods used by sociologists for understanding social life.

A18. **INTRODUCTION TO PSYCHOLOGY.** Professor D. Bindra, Department of Psychology. 20 lectures of 1½ hours, Mondays at 6 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $30.00.

This course deals with human behaviour and how psychology tries to explain it; the relation of psychology to social problems, education and

medicine; perception, learning, memory, thought, motivation and emotion; intelligence and its measurement; personality and temperament. *Text:* Ruch, *Psychology and Life*, 4th edition (Scott, Foresman; in Canada, W. J. Gage & Co.).

A19. PSYCHOLOGICAL PROBLEMS IN ADJUSTMENT. Dr. Shirley Ferguson, Department of Psychiatry. 10 lectures of 2 hours, Wednesdays at 8 p.m., beginning October 9th. Allan Memorial Institute of the Royal Victoria Hospital, 1025 Pine Avenue West, Fee $20.00.

This course, formerly called "Understanding Ourselves I", will be approached from a theoretical point of view with emphasis placed on the personality as it develops through growth and socialization. It will begin with personality theory and social and cultural processes. This will be followed by a more detailed study of the organism from before birth through old age, using the personality theory and our understanding of social and cultural processes as a framework.

A20. UNDERSTANDING OURSELVES. Dr. R. C. A. Hunter and Staff, Department of Psychiatry. 10 lectures of 2 hours, Wednesdays at 8 p.m., beginning January 22nd. Allan Memorial Institute of the Royal Victoria Hospital, 1025 Pine Avenue West. Fee $20.00. Class limited to 60 persons.

It is strongly recommended, although not required, that Course A19 be taken first. In Course A20 the class will be divided into groups of 20 or less, with an individual instructor. Consideration will be given to human problems, and interpretation and methods of handling them will be offered. Extensive use will be made of role-playing and group dynamics, and those attending will take part in actual group psychotherapy sessions at the Allan Memorial Institute. The subject matter of this course will also be valuable to personnel supervisors and to those responsible for group and recreational programs.

For those who may desire it, a routine mental health check-up will be available at a small additional fee. Ask the instructor about it.

A21. SOME MODERN ETHICAL THINKERS. Mr. J. D. Ross, Department of Philosophy. 10 lectures of 1½ hours, Tuesdays at 8 p.m., beginning October 8th. Arts Building. Fee $15.00.

This course is an introduction to some of the most important features of ethical thinking from the eighteenth to the twentieth centuries, with special reference to the theories of Hume, Kant, Mill and Moore.

A22. SELECTED TOPICS IN THE HISTORY OF EUROPEAN PHILOSOPHY. Professor Cecil Currie, Department of Philosophy. 10 lectures of 1½ hours, Tuesdays at 8 p.m., beginning January 21st. Fee $15.00.

Syllabus: 1. Mind and Matter: the dualism of Descartes as the beginning of modern philosophy. 2. Mind and Matter: the main metaphysical critics of Cartesianism; Spinoza and others. 3. The Problem of Human Knowledge: John Locke and his critics. 4. The Problem of Human Knowledge: contrasting theories of Hume and Kant. 5. Philosophical Theology: its proponents and its critics in modern thought. 6. Philosophy of Politics: Hobbes, Locke, Rousseau. 7. Philosophy of History and of Politics: Hegel and Marx. 8. The Ethics of Spinoza. 9. The Ethics of Kant. 10. The Ethics of Bergson.

A24. **THE GREAT POLITICAL THINKERS I.** Professor R. C. Pratt, Department of Economics and Political Science. 10 lectures of 1½ hours, Mondays at 8 p.m., beginning October 7th. Arts Building. Fee $15.00.

This course surveys the political thought of Plato, Aristotle, Cicero, Augustine, Aquinas and Machiavelli, with special attention to their contemporary significance.

A25. **THE GREAT POLITICAL THINKERS II.** Professor R. C. Pratt. 10 lectures of 1½ hours, Mondays at 8 p.m., beginning January 20th. Arts Building. Fee $15.00.

This course deals with the political thought of Hobbes, Locke, Rousseau, Burke, Marx, and John Stuart Mill, with special attention to their contemporary significance.

SECTION B

TECHNICAL COURSES

ENGINEERING COURSES—UNDERGRADUATE LEVEL

B1. **ALGEBRA AND ANALYTICAL GEOMETRY.** Professor Samuel Melamed, Department of Mathematics. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00.

This course is intended for students preparing to write the C.P.E.Q. "Fundamentals of Engineering" examinations, although it is open to others interested.

Syllabus: Algebra—Indices, logarithms, quadratic equations, complex numbers, interest and annuities, graphs, series, permutations and combinations, binomial theorem, complex numbers, vectors, exponential series, partial fractions. *Analytical Geometry*—Rectangular and Polar co-ordinates, the straight line, circle, parabola and ellipse. *Text:* Elliott and Miles, *College Mathematics: A First Course* (Prentice-Hall).

B2. CALCULUS. Mr. Michael Herschorn, Department of Mathematics. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00. *Prerequisite:* Course B1, or equivalent.

Syllabus: Limits, functional notation, differentiation of elementary functions, derivatives of sums, products and quotients, maxima and minima, differentiation of trigonometric, exponential and logarithmic functions, geometric applications, differentials. Integration of standard functions, definite integrals, areas and volumes, geometrical and physical applications. *Text:* Middlemiss, *Differential and Integral Calculus* (McGraw-Hill).

B3. MECHANICS II. Professors S. A. Neilson and Carleton Craig, Department of Civil Engineering. 20 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Engineering Building. Fee $40.00. *Prerequisite:* Mechanics I or equivalent.

Syllabus: Bending moments and shearing forces, and diagrams; forces in frameworks containing multiple-force members; relative velocities; linear motion with varying acceleration; plane curvilinear motion; simple harmonic motion, with application to oscillation of simple pendulums and helical springs; moments of inertia of masses and of areas; elementary rigid dynamics, including plane translation and rotation of rigid bodies, rolling and slipping on plane surfaces, compound pendulum, angular momentum, and impact. *Text: Mechanics 348—Graphical and Analytical Problems.*

B4. HYDRAULICS. Professor V. W. G. Wilson, Department of Civil Engineering. 20 lectures of 2 hours, Tuesdays at 8 p.m., beginning October 8th. Engineering Building. Fee $40.00.

Syllabus: Properties of fluids; hydrostatics; measurement of flow with orifices, weirs and Venturi meters; Bernouilli's theorem; laminar and turbulent flow; flow in pipes and open channels; divided flow. *Text:* Daugherty and Ingersoll, *Fluid Mechanics* (McGraw-Hill).

B6. FUNDAMENTALS OF HEATING, VENTILATING AND AIR CONDITIONING. Professor William Bruce, Department of Mechanical Engineering. 20 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Engineering Building. Fee $40.00. *Prerequisite:* Engineering Fundamentals or equivalent.

Syllabus: Thermodynamic principles and properties of various media; air-vapour mixtures and the psychrometric chart; factors affecting human comfort; heat transfer and insulation, and heat losses from buildings; radiators, convectors, baseboard heating, panel heating and unit heaters; distribution systems—air, steam and hot water—fans, ducts, diffusers, piping; furnaces, boilers, fuels and combustion processes; mechanical

refrigeration; air conditioning—heating, cooling, humidification and purification processes. *Text:* Allen, Walker and James, *Heating and Air Conditioning* (McGraw-Hill).

B7. THEORY AND PRACTICE OF SURVEYING. Professor Louis J. Arcand. 20 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Engineering Building. Fee $40.00. *Prerequisite:* High School Matriculation.

The lectures deal with the operation of the various types of Engineer's Levels, the Universal Transit and the art of measurement, for surveying practice in the field and in the shop. Emphasis will be placed on the use of the various units of measurement employed in the Province of Quebec, the adjustments of the instruments, the use of coordinates for area determination and computation of volumes, simple circular and easement curves, the theory and use of the polar planimeter and partition of land. Survey instruments, equipment and display panels will be available for demonstration. *Text:* Charles B. Breed, *Surveying* (Wiley).

B10. THE TECHNIQUE OF OPTICAL TOOLING. Mr. E. W. Morley, Bestec Canada Ltd. 20 lectures of 2 hours, Thursdays at 6 p.m., beginning October 10th. Engineering Building. Fee $40.00.

The course will cover the application of alignment telescopes and related equipment to the construction of aircraft tooling, machine tool alignment, and the installation of atomic energy reactors. It will also deal with the various techniques of auto reflection and auto collimation for the control of squareness. Further, it will deal with the aspects of linear control, in keeping with the optical techniques involved in the system. Various applications will be considered.

B11. FUNDAMENTALS OF ILLUMINATION. Messrs. A. H. Mendel and R. S. Tate. 10 lectures of 2 hours, Tuesdays at 6 p.m., beginning January 21st. Engineering Building. Fee $20.00.

Syllabus: Incandescent light sources; fluorescent light sources and ballasts; measurement of light; lighting systems—fixture evaluation; lighting design; quantity and quality of light; school and office, store, and industrial lighting; floodlighting and sports lighting. *Recommended text:* Illuminating Engineering Society, *I.E.S. Handbook.*

B12. INTRODUCTION TO INDUSTRIAL ENGINEERING. Messrs. B. O. Winter, G. M. Gallagher, R. V. Ward and others, Canadian Industries Limited. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00. *Prerequisite:* High School Matriculation.

Syllabus: The industrial engineer's problem; method study—five-step plan, flow process chart, man-machine chart, motion economy principles; clerical method study; job evaluation; work measurement—techniques,

time study, standard time, work sampling; maintenance control—procedures, planning and scheduling, cost control and cost analysis; statistical quality control—variations and frequency distribution, control charts, statistical acceptance sampling.

B13. STATISTICAL QUALITY CONTROL. Professor T. V. Narayana, Department of Mathematics. 20 lectures of 2 hours, Wednesdays at 6 p.m., beginning October 9th. Engineering Building. Fee $40.00. *Prerequisite:* High School Matriculation; some calculus desirable.

Syllabus: Introduction—the concept of Statistical Quality Control; probability distributions; measures of variation and central tendency; grouping of raw data; sampling; average and range charts—their construction and use; percent defective charts; other forms of controls; statistical sampling inspection; OC curves; fundamentals of acceptance sampling; MIL—STD—105A tables; attribute and variable sampling inspection plans; vendor quality level certification; sequential methods; SQC and tests of significance in general; introduction to advanced topics; recent industrial and practical problems. *Texts: ASTM Manual on Quality Control of Materials* (American Society for Testing Materials); *MIL-STD-105A: Sampling Procedures and Tables for Inspection by Attributes* (U.S. Government Printing Office).

B15. CORROSION OF METALS. Professor H. H. Yates, Department of Metallurgical Engineering. 20 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $40.00. *Prerequisite:* University graduation or equivalent.

A general description of the wide-spread nature of corrosion is followed by detailed consideration of the basic principles underlying corrosion processes. The corrosion behaviour of common ferrous and non-ferrous metals is discussed in terms of internal and environmental factors, the latter including rural, industrial and marine atmospheres and a number of aqueous media. Consideration is also given to stainless steels and other special corrosion-resistant alloys. Corrosion testing is dealt with, particularly the advantages and disadvantages of accelerated tests. Some attention is given to preventive measures, including choice of material, design, coatings and cathodic protection.

B16. ADVANCED CALCULUS. Professor Charles Fox, Department of Mathematics. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00. *Prerequisite:* Course B2, or equivalent.

This course is designed to prepare the student for those branches of mathematics which are most frequently used in advanced problems of engineering, physics, chemistry etc. The syllabus includes review of

elementary calculus, the theory of power series and Taylor's theorem, partial differentiation with applications, multiple integration, the theory of differential equations, both total and partial, the theorems of Stokes, Green and Gauss, and an introduction to the calculus of variations. *Text:* Frederick S. Woods, *Advanced Calculus* (Ginn).

ENGINEERING COURSES—GRADUATE LEVEL

Graduate engineers engaged in research, design and development work in Electrical and Mechanical Engineering and in Aeronautics require more advanced training than can be included in undergraduate courses. The courses listed below have been designed to provide this advanced training and, in addition, they offer the opportunity to properly qualified students to complete the course requirements for an advanced Diploma or Master's degree while gainfully employed. Complete details of the course and other requirements for the Graduate Diploma in Electrical and Mechanical Engineering and for the Certificate in Aeronautics, the M.Eng. degree in Electrical and Mechanical Engneering, and the M.Sc. in Electrical Communications may be obtained on request at the Extension Office.

In order to meet the needs of graduate engineers and physicists in the Ottawa area, graduate courses in Electrical Communications sponsored by McGill are offered in the evening at Carleton College, Ottawa. These courses may also be taken for credit toward a Diploma or Master's degree.

Electrical Engineering

B21. **TRANSIENT ANALYSIS AND PULSE TECHNIQUES.** Professor G. W. Farnell, Department of Electrical Engineering. 20 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Engineering Building. Fee $40.00.

This course will cover principles and techniques of pulse circuits applicable to the fields of television, radar, computers and pulse communication systems. The topics include: Transient solution of circuit problems by means of the Laplace transform, transient response of amplifiers; basic pulse circuits such as overdriven amplifiers, multivibrators, counters and gating circuits; pulse modulation topics such as principles of time-division multiplexing, pulse-time and pulse-code modulation; transistor switching circuits. *Texte:* Millman and Taub, *Pulse and Digital Circuits* (McGraw-Hill).

B22. **SERVOMECHANISM FUNDAMENTALS.** Professor H. G. I. Watson, Department of Physics. 20 lectures of 2 hours, Tuesdays at 8 p.m., beginning October 8th. Engineering Building. Fee $40.00.

Syllabus: The principles of analysis of automatic control systems with emphasis on the study of system behaviour and system synthesis in terms of differential equations and complex functions. Allied electrical circuit theory, with special emphasis on transfer function analysis and the study of stability criteria, will be included. *Texts:* Lauer, Lesnick and Matson, *Servomechanism Fundamentals* (McGraw-Hill); F. E. Nixon, *Principles of Automatic Controls* (Prentice-Hall).

B23. NETWORK ANALYSIS. Professor T. J. F. Pavlasek, Department of Electrical Engineering. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00

Syllabus: Steady state analysis of linear passive and active networks; matrix methods; introduction to transient analysis and use of transform techniques; two-terminal and quadripole networks in frequency and time domains; analysis and design of filters by image parameter method; block diagram analysis of networks; study of negative feedback theory. *Text:* Stewart, *Circuit Theory and Design* (Wiley).

B24. INDUSTRIAL NOISE REDUCTION. Professor F. S. Howes, Department of Electrical Engineering. 20 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Engineering Building. Fee $40.00.

The problem of noise reduction in industrial plants and buildings requires some knowledge of acoustics and special measuring techniques. This course will present details of techniques and materials for noise reduction and methods for measuring a wide variety of noises. *Topics:* Basic terminology and concepts; measurement of noise; psychological aspects; room acoustics theory; noise reduction in rooms; transmission of sound through structures; characteristics of noise sources; materials and structures for noise reduction; mufflers and vibration isolators; machinery and ventilation-system quieting. *Text:* Beranek, *Acoustics* (McGraw-Hill).

B25. APPLIED MATHEMATICS. Professor P. R. Wallace, Department of Mathematics. 20 lectures of 2 hours, Wednesdays at 6 p.m., beginning October 9th. Engineering Building. Fee $40.00. *Prerequisite:* Course B16 or equivalent.

This course deals with the mathematical methods of engineering: vector analysis; Fourier series and other expansions and their use in differential equations of engineering; and operational methods. A selection of basic problems arising in engineering is treated, and the commonly occurring functions and differential equations are studied. The course is designed to extend the power of the graduate engineer to understand and use the mathematical techniques employed in the modern

literature in radiation theory, circuit analysis, aerodynamics, etc. *Text:* Bronwell, *Advanced Mathematics in Physics and Engineering* (McGraw-Hill.).

B26. OPERATIONAL CALCULUS AND MATRIX ALGEBRA. Professor E. Rosenthall, Department of Mathematics. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00. *Prerequisite:* Elementary Calculus.

This course provides an introduction to operational methods in mathematics and topics in matrix algebra. Subjects covered will include the Fourier-Mellin Theorem; calculation of direct transforms; calculation of inverse transforms; impulsive functions; Heaviside's rules; transforms of periodic functions; applications of operational calculus to the solution of differential equations (ordinary and partial) which arise in dynamics, heat conduction, electromagnetic theory, linear networks, transient phenomena, etc. The fundamental rules of matrix algebra will be discussed and applications made to linear transformations, quadratic forms, eigenvalues, illustrated by problems from applied mathematics. *Text:* Churchill, *Modern Operational Mathematics in Engineering* (McGraw-Hill).

B27. ELECTRICAL MACHINE DESIGN. Professor W. H. Schippel, Department of Electrical Engineering. 20 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Engineering Building. Fee $40.00.

This course will cover the application of single-phase, polyphase, and D.C. electrical motors in industry, and their design to meet diverse requirements of starting and operating conditions. Actual designs will include polyphase squirrel-cage and wound-rotor motors; single-phase motors with split-phase and capacitor starting; shunt, stabilized-shunt, compound and series D.C. motors; A.C. and D.C. generators; transformers, auto-transformers, and reactors. Design problems will be assigned.

OTTAWA COURSES (*Carleton College.*)

B31. ACOUSTICS. Dr. Edgar A. G. Shaw, National Research Council. 20 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Carleton College, Ottawa. Fee $40.00.

Syllabus: Fundamental theory of vibrations, free, damped, forced and coupled oscillations; flexible string, bars and membranes; mechanical-electrical analogies; radiation, transmission and absorption of sound; boundary conditions and normal modes; horns, resonators and filters. Application of theory to room acoustics, sound transmission through structures and noise control; measurements and terminology; concept of loudness.

B32. TRANSISTOR THEORY AND APPLICATIONS. Dr. John H. Simpson and Mr. Roger S. Richards, National Research Council. 20 lectures of 2 hours, Wednesdays at 8 p.m., beginning October 9th. Carleton College, Ottawa. Fee $40.00.

The course will commence with an outline of the theory of semiconductors and barrier layers. The theory of point-contact and junction rectifiers and transistors will be discussed in detail. In the application of transistors, circuits to replace those normally using conventional vacuum tubes will be analyzed. The application of transistors in low and high frequency circuits, in pulsed circuits and computers, and other uses for which transistors are especially suitable will be considered.

B33. AUTOMATIC CONTROL. Dr. John H. Milsum, National Research Council. 20 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Carleton College, Ottawa. Fee $40.00.

Syllabus: System Characterisation and Solution Methods: Linearisation, lumped-constants, practical controllers, systems' examples, analog computer solutions, graphical analysis, time delays. System 'Optimisation': error criteria—application to transient upsets; characterisation of random signals; optimisation with random signals; developments for non-linear cases.

Mechanical Engineering

B35. ELEMENTS OF NUCLEAR REACTOR THEORY. Professor A. Robert Edis, Department of Mechanical Engineering. 20 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Engineering Building. Fee $40.00. *Prerequisites:* Mathematics up to differential equations, and a knowledge of classical mechanics.

This course will cover sufficient of the physics of the neutron to enable the student to understand elementary nuclear reactor theory. The approach will be from the engineer's viewpoint.

The "bare homogeneous" reactor, and then one-group and two-group theory for the reactor with reflector, will be dealt with. In this study the operation of the energy-producing core will be examined. Time permitting, reactor control and kinetics will be introduced.

B36. PROCESS HEAT TRANSFER. Professor Jules W. Stachiewicz, Department of Mechanical Engineering. 20 lectures of 2 hours, Tuesdays at 8 p.m., beginning October 8th. Engineering Building. Fee $40.00.

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This is a course on design of industrial heat transfer equipment with a special stress on design of shell-and-tube heat exchangers, coolers, heaters, condensers etc. for oil refineries, power plants and other industrial processes; also design of air and gas heat exchangers for gas turbines. The main stress will be on the thermal aspects of the design, but mechanical features will also be discussed. *Text: Standards of Tubular Exchanger Manufacturers' Association.*

B38. HIGH SPEED AERODYNAMICS. Professor J. H. T. Wu, Department of Mechanical Engineering. 20 lectures of 2 hours, Mondays at 8 p.m. beginning October 7th. Engineering Building. Fee $40.00.

Syllabus: Thermodynamics of compressible fluid flow; compressible potential flow; Prandtl-Glauert and Karman-Tsien approximations; small perturbation, hodograph and method of characteristics; shock waves; application to subsonic and supersonic airfoil. *Text:* Liepmann & Roshko, *Elements of Gas Dynamics* (Wiley).

TRANSLATION

Courses B51 to B55 constitute a three-year series leading to a Diploma in Translation. They involve one two-hour period a week, and are open to all qualified students. A *Certificate* is given at the end of each of the three years to those who are successful in the examinations. To gain the *Diploma*, first class standing must be obtained in translation from French to English and from English to French in the examinations at the end of the Second and the Third years. Applicants should write or telephone the Extension Office, McGill University (VI. 9-9181, local 304) well before the date of the qualifying examination and ask for full details.

Students who successfully completed any of these courses last session may register by mail for the next course in the series. Students who were unsuccessful in a course last session may register by mail to repeat the course. A registration card may be obtained by writing or telephoning the Extension Office. Mailed registration cards, with cheque attached, should reach the Extension Office by October 4th.

ADMISSION

(a) Students in possession of a degree (B.A., B.Sc., B.Com.) from a recognized college or university will be permitted to register for the First year on production of an *official* transcript of their degree. This may be mailed or brought to the Extension Office.

(b) *All other students* wishing to enter First year MUST write the entrance examination in the Arts Building, McGill University, at 7 p.m. on Monday, September 23rd.

(c) All *new* students wishing to enter Second year MUST write the entrance examination on September 23rd. Their standing in that examination will determine whether they can be admitted to Second year or should revert to First year.

(d) An examination fee of $1.00 must be paid at the door.

(e) Within seven days of the date of the entrance examination, new students will be notified in writing of their admission to First or Second year. Those admitted may then register by mail. Registration cards, with cheques attached, should reach the Extension Office by October 11th.

FEES

The student fee, payable in full at registration, is the same for each course and is $45.00. Members of the Montreal Translators' Society, on presentation of their 1957 membership cards, will be registered at a reduced fee of $40.00. All Translation Course students are urged to join the Montreal Translators' Society, whose office is Room 246, Palais du Commerce (Show Mart), 1650 Berri Street. The yearly fee of the Society is $5.00 and its members enjoy special privileges. A cheque for $5.00 should be sent *directly to the Society.*

FIRST AND SECOND YEARS: COMMERCIAL TRANSLATION

The purpose of these courses is to assist students in acquiring or perfecting ease of style and propriety of vocabulary in translating commercial material—correspondence, reports, advertising matter, simple sales contracts and the like—from English into French and *vice versa.*

The fields of terminology covered are broadly those of trade, finance and business administration. These courses are designed to emphasize the fact that commercial translation requires both accuracy and elegance, together with a proper understanding of the principles of correct drafting and composition. A course of reading is recommended to the students. It includes standard remedial manuals and works of reference on the use of language and the art of translation.

B51. ENGLISH-FRENCH AND FRENCH-ENGLISH COMMERCIAL TRANSLATION (1st year). Mr. H. W. Mandefield and Mr. Gilbert H. King. 20 lectures of 2 hours, Tuesdays at 7:30 p.m., beginning October 15th. Arts Building.

B52. ENGLISH-FRENCH AND FRENCH-ENGLISH COMMERCIAL TRANSLATION (1st year) Mr. Roy A. Field and Mr. F. Dufau-Labeyrie. 20 lectures of 2 hours, Wednesdays at 7:30 p.m., beginning October 16th. Arts Building.

B53. ENGLISH-FRENCH AND FRENCH-ENGLISH COMMERCIAL TRANSLATION (2nd year). Mr. Gilbert H. King and Mr. H. W. Mandefield. Tuesdays at 7:30 p.m., beginning October 15th. Arts Building.

B54. ENGLISH-FRENCH AND FRENCH-ENGLISH COMMERCIAL TRANSLATION (2nd year). Mr. F. Dufau-Labeyrie and Mr. Roy A. Field. Wednesdays at 7:30 p.m., beginning October 16th, Arts Building.

THIRD YEAR: GENERAL TRANSLATION

This course, which is conducted alternately in French and in English, is intended for students with a fair background of linguistic knowledge. It provides an introduction to translation work of a literary value and all texts are selected from among the work of writers whose fields range from the descriptive or psychological novel to the critical essay and topical article of merit and distinction. Apart from the constant building up of indispensable vocabulary this course particularly stresses the stylistic aspect of English and French, and special attention is paid to synonyms, shades of meaning and the accurate rendering of the general tone of a page.

B55. ENGLISH-FRENCH AND FRENCH-ENGLISH GENERAL TRANSLATION (3rd year). Miss L. Mabel King. 20 lectures of 2 hours, Wednesdays at 7:30 p.m., beginning October 16th. Arts Building.

ENGLISH

B56. ENGLISH COMPOSITION AND BUSINESS WRITING. Professor Kathleen M. Vaughan, Department of English. 25 lectures of 1½ hours, Tuesdays at 8 p.m., beginning October 8th. Arts Building. Fee $38.00. *Prerequisite:* High School Matriculation. This course is strictly limited to those whose native tongue is English. Those who speak English fluently, but whose native tongue is not English, should register for *Course E34* (see page 3959).

This course is a study of the principles of effective English expression and their application in business letters, business reports, and other forms of communication and record. The course begins with 'refresher' lectures on grammar, sentence structure, punctuation, and paragraphing, and proceeds to a detailed consideration of the techniques used in writing utility, sales, credit and collection, claim and adjustment, and application letters. There is also a detailed consideration of the procedure to be followed in writing business reports and a description of the types of prose which contributes to the effectiveness of reports. Students are encouraged but not required to write assignments for individual criticism. *Texts:* Robert R. Aurner, *Effective Communication in Business* and *Effective Communication in Business Workbook* (South-Western Publishing Co.).

FRENCH

BEGINNERS' FRENCH. Two classes of 25 1½-hour periods. Arts Building. Fee $38.00 for each class. Both classes limited to 25.

This course has been especially planned for students who have *never* studied French before, and who desire to attain quickly a measure of fluency in that language. The approach will be entirely aural-oral, the course being planned to equip the student with a minimum of essential grammar. Attention will be paid to correct pronunciation from the start, and aural comprehension will be particularly stressed. There will be a short conversation at the end of every class. Written exercises will be given but will not be compulsory. *Text:* G. Mauger, *Cours de langue et de civilisation françaises à l'usage des étrangers* (Librairie Hachette, Paris).

B58. Professor Y. Champigneul, Department of Romance Languages. Mondays at 8 p.m., beginning October 7th.

B59. Professor M. T. Reverchon, Department of Romance Languages. Tuesdays at 6:30 p.m., beginning October 8th.

ELEMENTARY FRENCH. Two classes of 25 1½-hour periods. Arts Building. Fee $38.00 for each class. Both classes limited to 25.

This course is an elementary one, devised for students who have studied some French previously but who, for lack of opportunity to use it, have forgotten most of it. French will be begun again from scratch, but the rate of progress will be faster than in *Beginners' French*, and, while the emphasis will remain on an aural-oral approach, attention will be paid to correct grammar. Students will be invited to devote some of their spare time to study, and written exercises will be set. *Text:* Denoeu and Hall, *Spoken and Written French* (Heath).

B60. Mr. G. D. Jackson, Department of Romance Languages. Wednesdays at 8 p.m., beginning October 9th.

B61. Professor T. Romer, Department of Romance Languages. Tuesdays at 8 p.m., beginning October 8th.

ELEMENTARY FRENCH CONVERSATION. Three classes of 25 1½-hour periods. Arts Building. Fee $38.00. Classes limited to 22.

This course consists of intensive oral work with the language, with emphasis on pronunciation, fluency and correct grammar. Attention will be given to enlarging the students' vocabulary, with particular regard to their professional needs or interests. This is a very suitable course for students who have taken the written or reading approach to French and desire to bring to life the linguistic material previously

acquired. *Students will receive individual attention. Text:* G. Mauger, *Cours de langue et de civilisation francaises à l'usage des étrangers* (Librairie Hachette).

B62. Mr. M. Rabotin. Wednesdays at 8 p.m., beginning October 9th.

B63. Professor T. Romer. Thursdays at 8 p.m., beginning October 10th.

B64. Professor Y. Champigneul. Mondays at 6 p.m., beginning October 7th.

B65. INTERMEDIATE FRENCH. Professor André Rigault, Department of Romance Languages. 25 lectures of 1½ hours, Mondays at 6 p.m., beginning October 7th. Arts Building. Fee $38.00. Class limited to 25

This course is intended for students who have taken French in High School or who have recently taken an elementary French course. A grammar review will be undertaken and a certain amount of written work will be offered on the less familiar aspects of syntax; but most of the class work (which it is hoped to conduct entirely in French) will be aimed at developing aural comprehension and increasing the students' active vocabulary on a wide range of topics. *Texts:* I. F. Fraser, *French Reviewed, A Review and Reference Grammar* and *Workbook* to accompany (Rinehart); O. F. Bond, Graded French Readers: *L'Anglais tel qu'on le parle*, Book VII, and *Les Farceurs*, Book VIII (Heath).

B66. INTERMEDIATE FRENCH CONVERSATION. Professor M. T. Reverchon. 25 periods of 1½ hours, Tuesdays at 8 p.m., beginning October 8th. Arts Building. Fee $38.00. Class limited to 22.

This course will be purely oral and conducted entirely in French. It is intended for students who have reached an average degree of aural comprehension but still experience difficulty in expressing themselves in French. The course will feature a review of every-day words and phrases used in real-life situations. *Students will receive individual attention. Text:* Shields, *Parlons français* (Houghton Mifflin).

B67. ADVANCED FRENCH CONVERSATION. Mme. S. Launay. 25 periods of 1½ hours, Mondays at 6:30 p.m., beginning October 7th. Arts Building. Fee $38.00. Class limited to 22.

This course is intended for students who feel the need for fluent conversational French in business or who desire to attain a really good command of the spoken language. It will take the form of debates and discussions on prepared topics and of review of current phrases as necessary. Each lecture will include pronunciation exercises adapted to class needs. The course will be conducted entirely in French and students will receive individual attention. *Texts:* Picard and Black, *Manuel de conversation française* (Heath).

B68. SPOKEN FRENCH FOR EVERYDAY USE. Professor André Rigault. 25 lectures of 1½ hours, Wednesdays at 6 p.m., beginning October 9th. Arts Building. Fee $38.00. Class limited to 22.

This purely oral course (to be given in French) has been planned to give an intensive training in the main elements of conversational French. Class work will aim at developing fluency through exercises in aural comprehension, and will include the study of French speech habits and discussions on prepared topics. The latest basic French word list will be reviewed at the beginning and students will be drilled in the methods of French word building and the recognition of cognates, thus considerably enlarging their working vocabulary. *Texts:* P. Delattre, *An Introduction to French Speech Habits* (Holt); J. Landry, *Graded French Word and Idiom Book* (Heath).

GERMAN

CERTIFICATE OF PROFICIENCY IN GERMAN. A Certificate of Proficiency in German will be given upon the successful completion of the graded courses described below to those students who wish to undergo special examinations in oral and written German. Other students may pass an examination for a simple Pass Certificate. A student who has studied German at another university may be granted credit and be permitted to enter either the Second or the Third year of the course.

B69. BEGINNERS' GERMAN (1st year). Professor Bertha Meyer, Department of German. 25 lectures of 1½ hours, Thursdays at 6:30 p.m., beginning October 10th. Arts Building. Fee $38.00. Class limited.

This course offers a brief survey of German grammar and an introduction to the spoken and written language through the medium of an easy text. Oral German is stressed from the beginning and the pupil is encouraged to use the language as much as possible. *Text:* Guerber, *Märchen und Erzhälungen* (Heath); Erika Meyer, *Elementary German* (Houghton Mifflin).

B70. GERMAN INTERMEDIATE (2nd year). Mrs. Gertrud Mladenovic. 25 lectures of 1½ hours, Thursdays at 6:30 p.m., beginning October 10th. Arts Building. Fee $38.00. Class limited.

This course offers the student the opportunity to continuethe practice of spoken and written German and to attain some degree of fluency and correctness in the langugage. Such discussion of grammar and syntax as are found necessary will be given. Conversation will be encouraged. *Texts:* Stroebe, *Vom Alltag zur Literatur* (Holt); Fabrizius, *Wer zuletzt lacht . . .* (Appleton-Century-Crofts).

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B71 and B72. GERMAN ADVANCED (3rd and 4th years). Mrs. Gertrud Mladenovic. 25 lectures of 1½ hours, Mondays at 6:30 p.m., beginning October 7th. Arts Building. Fee $38.00. Class limited.

This course will be conducted in German as far as possible. Through the medium of modern texts the idiom of colloquial German will be practised and special attention will be paid to developing fluent conversation and correctness in writing and translating original German and English texts. Students who want to obtain a Certificate of Proficiency are required to study additional texts. *Texts:* Loram and Phelps, *Aus unserer Zeit* (Norton); Sutcliffe, *German Translation and Composition* (Harrap).

ITALIAN

B73. ITALIAN ELEMENTARY: LANGUAGE AND CONVERSATION. Mrs. Anne Noad. 25 lectures of 1½ hours, Wednesdays at 6:30 p.m., beginning October 9th. Arts Building. Fee $38.00. Class limited.

This course is planned for beginners who have had no previous experience with the language. It aims at building a practical vocabulary for everyday use and, to that effect, uses the oral-aural approach almost exclusively for the first term. In conversational practice the emphasis will be laid on fluency rather than on grammatical correctness, grammar being presented in its functional form and limited to basic syntax. In the second term, the emphasis will be on commercial vocabulary. *Texts:* Grandgent and Wilkins, *Italian Grammar* (Heath); Cioffari and Van Horne, *Letture Varie* (Heath); Kany and Speroni, *Elementary Italian Conversation* (Heath); Cuthbertson, *Italian Verb Wheel* (Heath).

B74. ITALIAN INTERMEDIATE (short course). Mrs. Anne Noad. 10 lectures of 1½ hours, Mondays at 8 p.m., beginning October 7th. Arts Building. Fee $15.00. Class limited.

This course is intended for students who, having mastered the main elements of grammar and pronunciation, wish to concentrate on more advanced reading, composition and conversation than is possible in the elementary course. Students will have a chance to become familiar with the writings of contemporary Italian authors, and during each lecture a period will be devoted to class discussion of current events, using as text books Italian periodicals which may be obtained in the city. The course will be conducted largely in Italian and will aim at developing the ability to read, write and understand this language with ease. *Text:* Bergin, *Modern Italian Short Stories.*

RUSSIAN

B75. RUSSIAN ELEMENTARY. Dr. V. N. Litwinowicz. 25 lectures of 1½ hours, Mondays at 8 p.m., beginning October 7th. Arts Building. Fee $38.00. Class limited.

This course will begin with the general characteristics of the Russian language, the alphabet and phonetic values of separate letters; accent; basic rules of grammar. There will be reading, oral and written exercises, and translation into English and Russian of selected articles, accompanied by a gradual introduction to Russian culture and civilization. *Text:* G. A. Znamensky, *Conversational Russian* (Ginn).

B76. RUSSIAN INTERMEDIATE. Dr. V. N. Litwinowicz. 25 lectures of 1½ hours, Mondays at 6:30 p.m., beginning October 7th. Arts Building. Fee $38.00. Class Limited.

This course will include the translation of selected stories of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy; intensive drill in Russian grammar; oral and written exercises. *Texts: Russian Short Stories, XIXth Century* (Oxford University Press); A Semeonoff, *A New Russian Grammar* (Dent).

B77. RUSSIAN ADVANCED. Dr. V. N. Litwinowicz. 25 lectures of 1½ hours, Thursdays at 8 p.m., beginning October 10th. Arts Building. Fee $38.00. Class limited.

This course, which is conducted in Russian, will include a survey of Nineteenth Century Russian literature; translation of selected works of Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy; intensive drill in Russian syntax; oral and written exercises. *Texts: Russian Short Stories, XIXth Century* (Oxford Univ. Press); V. K. Mueller, *English-Russian and Russian-English Dictionary* (2 vols.) (Dutton).

SPANISH

A CERTIFICATE OF PROFICIENCY IN SPANISH will be granted on the successful completion of the graduated courses, extending over four years, described below. A mark of 65 percent or higher must be obtained in the Fourth year examination in order to gain the Certificate of Proficiency. Those who have studied Spanish at some other institution may be granted credit for one or more years depending on the progress they have made.

B78. SPANISH ELEMENTARY (1st year): Conversation and Composition. Professor Robina E. Henry, Department of Romance Languages. 25 lectures of 1½ hours, Thursdays at 6:30 p.m., beginning October 10th. Arts Building. Fee $38.00. *Class limited to 25 students.*

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A beginners' course designed to teach students to read, write and speak Spanish, and to become conversant with the main grammatical principles of the language. Ample practice will be given in written work by means of translations and dictation. Students will be given considerable practice in oral work, particular importance being attached to self-expression, so as to prepare them for the Second year course, which is conducted largely in Spanish. *Texts:* Fernández and Hayes, *Beginning Spanish* (Houghton, Mifflin); Rogers and Centeno, *Patterns of Spanish Conversation* (Houghton, Mifflin); Timms, *Poco a poco* (Univ. of London Press).

B79. SPANISH ELEMENTARY (1st year): Conversation and Composition. Identical with the above. Time: Thursdays at 8:15 p.m., beginning October 10th.

Applicants must indicate clearly, when registering, the class they wish to take.

B80. SPANISH INTERMEDIATE (2nd year): Conversation and Composition. Professor Gaston F. Stegen, Department of Romance Languages. 25 lectures of 1½ hours, Thursdays at 8:15 p.m., beginning October 10th. Arts Building. Fee $38.00. *Class limited to 25 students. Prerequisite:* at least one year's study of the Spanish language.

This course presents a rapid and effective method of study for students of Spanish who have mastered the main elements of grammar and pronunciation. Considerable written practice is given in grammar and syntax by means of translations and compositions. Particular importance is attached to oral work, and the course is conducted in Spanish. As an introduction to the study of Spanish literature, the course includes the reading and discussion of a novel. *Texts:* D. D. Walsh, *Repaso* (Norton); A. Palacio Valdés, *La Hermana San Sulpicio* (Holt); Marin and Taylor, *La vida española* (Appleton-Century-Crofts).

B81 and B82. SPANISH ADVANCED (3rd year) and SPANISH FINAL (4th year): Conversation, Composition and Literature. Professor L. B. Harrop, Department of Romance Languages. 25 lectures of 1½ hours, Thursdays at 8:30 p.m., beginning October 10th. Arts Building. Fee $38.00. *Class limited to 25 students. Prerequisite:* two or three years of Spanish studies, or the equivalent.

This combined Third and Fourth year course includes advanced composition, conversation, pronunciation and intonation drills, the reading of novels, plays and a Spanish magazine, a brief account of Spanish civilization, and modern Spanish idiom. *Each year, a different aspect or period of literature will be studied.* In 1957-58, the emphasis will be on the Contemporary Spanish Theatre. Those who are in their Fourth (or Final) year of Certificate of Proficiency studies will be required to do additional work as indicated below. *Texts:* García Lorca, *La*

casa de Bernarda Alba (Contemporánea); Buero Valejo, *En la ardiente oscuridad* (Alfil); Harrop, *Spanish Phonetic Reader;* Harrop, *Spanish Graded Comprehension Pieces;* Harrop, *Notes on Spanish Pronunciation;* Benavente, *Tres Comedias* (Harrap); Levy, *Present-Day Spanish* (Dryden); Tarr and Centeno, *A Graded Spanish Review Grammar* (Appleton-Century-Crofts). ADDITIONAL TEXT FOR FOURTH YEAR: *An Omnibus of Modern Spanish Prose* (Odyssey). Fourth year students will also study the history of the 19th Century novel in Spain.

B83. SPANISH COMMERCIAL PRACTICE AND CORRESPONDENCE. Señor H. Sandoval, Department of Romance Languages. 10 lectures of 1½ hours, Thursdays at 7 p.m., beginning October 10th. Arts Building. Fee $15.00. *Prerequisite:* The Certificate of Proficiency in Spanish *or* qualifications of equivalent standard.

This is an advanced course taught in Spanish, of Spanish commercial practice (written and oral) for those who have already thoroughly assimilated the grammatical structure of the language. *No grammar as such will be taught,* but the pupils' errors will be corrected. A good deal of written work will be required, and these written exercises will be throughly corrected and discussed. As personal contact with clients is often part of the work of the foreign-language correspondent, attention will also be paid to correct pronunciation and intonation, and to the acquisition of a good conversational style and vocabulary. Such oral lessons will, as far as possible, also be based on commercial themes. It is suggested that students complete the Certificate of Proficiency *before* enrolling in this course, though it may be taken concurrently with the *final* years of the Certificate if so desired. *Texts:* Eckersley and Kaufmann, *English and American Business Letters* (Longmans): Tatum, *Pan-American Business Spanish* (Appleton-Century-Crofts).

B85. CARDIOLOGY (Postgraduate Course). Dr. Harold N. Segall, Faculty of Medicine, and Dr. Martin Hoffman, Dr. Arthur Vineberg, Dr. M. Aronovitch, Dr. Albert Lapin, Dr. Sydney Segall, Dr. Joseph Wener, Dr. Isadore Rosenfeld. 20 clinics, Saturdays, 11 a.m. to 1 p.m., beginning October 12th. Jewish General Hospital (Lecture Hall, Nurses' Residence, Cote des Neiges Road). Fee $40.00. Class limited to 50 medical practitioners.

The hour of 11 a.m. to 12 noon will be devoted to clinical demonstrations with the aid of the multiple outlet stethoscope. The hour of 12 noon to 1 p.m. will be devoted to lectures on recent advances in Electro-Physiology, Cardiac Surgery, Regulation of Water Balance and Thyrocardiac Diseases. Four of these hours will be used for introducing the subject of Clinical Respiratory Physiology with demonstrations of modern techniques of measuring respiratory function.

B87. DENTAL ASSISTANTS' TRAINING COURSE. Dr. D. W. Henry, Faculty of Dentistry; and others. 20 lectures of 2 hours, Wednesdays at 7:30 p.m., beginning October 9th. Medical Building. Fee $75.00.

This course is designed as an introduction to Dentistry for the individual interested in making dentistry and dental assisting a career. It will include lectures in anatomy, physiology, bacteriology, office management and all of the important specialties of Dentistry. Demonstrations in the significant areas of a Dental Assistant's activity will be provided,—in the atmosphere of the dental office or hospital whenever possible.

B90. NURSING IN THE COMMUNITY. Miss Kathleen L. Macdonald, School for Graduate Nurses. 10 lectures of 1½ hours, Wednesdays at 6:30 p.m., beginning October 9th. Physical Sciences Centre, 3450 University Street. Fee $15.00.

This course is designed for nurses working in hospitals, industry, visiting nurses' associations, health departments and specialized services. The course considers health needs in Canada and the resources to meet these needs. Consideration will be given to the functions of French and English health services in the Province of Quebec, with emphasis on methods of coordinating these services.

B91. WARD MANAGEMENT AND SUPERVISION. Mrs. Nancy Franklin. 20 lectures of 2 hours, Tuesdays at 6:30 p.m., beginning October 8th. Engineering Building. Fee $40.00. *Registration restricted to graduate nurses.*

Syllabus: A study of administrative planning for the hospital ward as the unit of hospital administration, plans for patient care, controlling the environment, supplies and equipment, personnel, ward teaching as part of the administrative plan, the function of the ward in the educational programme of the student nurse; the principles of supervision applied to nursing education and nursing service in establishing a supervisory programme.

This course is identical with that given in the regular programme. *Students eligible for admission to the School for Graduate Nurses may receive credit for this course. Text:* Jean Barrett, *Ward Administration and Teaching* (Appleton-Century).

B94. INTRODUCTION TO RECREATION LEADERSHIP. Mr. Emanuel Weiner, of Neighbourhood House. 10 lectures of 2 hours, Saturdays at 10 a.m., beginning October 12th. School of Social Work, 3600 University Street. Fee $20.00.

This course will present a combination of theory and practice. The participants will learn and practice games, simple arts and crafts, music and singing, dances, story-telling, dramatics; at the same time they will

acquire some knowledge of how to work with people, of leadership skills, programme planning, and use of community resources. This course is planned especially for recreation employees with little or no experience, and for volunteers in hospitals, churches, and recreation programs.

B95. INTRODUCTION TO RECREATION LEADERSHIP. Similar to above, but intended for playground leaders, camp staff, and volunteer recreation workers, with summer recreation in mind. Begins January 25th.

B96. ADVANCED RECREATION LEADERSHIP. Dean Robert Rae, Sir George Williams College. 10 lectures of 2 hours, Wednesdays at 10 a.m., beginning October 9th. School of Social Work, 3600 University Street. Fee $20.00.

This course will present a combination of theory and practice. It will deal with the organization of mass activities and special events, work with committees and councils in recreation, health and safety in recreation, the roles of public and private services and the schools in recreation, a general approach to administration of recreation services. The course is planned especially for playground leaders, church recreation leaders, recreation employees, youth group leaders, camp staff, and volunteers.

The prerequisite to this course is one year or one summer of employment in a full-time recreation position, or *Introduction to Recreation Leadership* course, or several years' experience in organizing recreation work.

B97. ATHLETICS IN THE RECREATION PROGRAM. Mr. Gordon McFarlane, Montreal Parks and Playgrounds Association. 10 lectures of 2 hours, Wednesdays, beginning January 22nd. School of Social Work, 3600 University Street. Fee $20.00.

The aim of this course is to help the participants acquire skill in teaching and leading athletics. The course will combine practice and theory, and will deal with the various forms of athletics, types of league organization and competition, coaching, athletics and mental health. It is planned especially for recreation workers, volunteers, group social workers, playground leaders, camp staff, and church recreation leaders.

B98. PRACTICAL DEMOCRACY. Mr. Arthur Rotman, Snowdon Y.M.H.A. 10 lectures of 1½ hours, Tuesdays at 8 p.m., beginning October 8th. School of Social Work, 3600 University Street. Fee $15.00.

This discussion course on the methods and problems of obtaining "grass-roots" participation in organized groups, and of developing effective group effort, is for leaders and members of men's and women's clubs, trade union locals, church organizations, and youth groups. Class sessions will deal with current experience of the members in dealing with conflicts, cliques, program planning, dominant or passive group members, and the sharing of responsibility among the members. There will be an opportunity for "skill practice" as well as discussion.

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SECTION C
COURSES IN ACCOUNTANCY

(IN COOPERATION WITH THE SCHOOL OF COMMERCE)

In cooperation with the School of Commerce, the Extension Department offers an evening course program in Accountancy and allied subjects to meet the needs of those interested in such training. This program provides the curricular requirements for Commerce graduates proceeding to the Licentiate in Accountancy; for students of the Institute of Chartered Accountants of the Province of Quebec proceeding to the C.A. diploma; for students proceeding to the diploma of the Society of Industrial and Cost Accountants; for students of the Chartered Institute of Secretaries; and for students of the General Accountants' Association.

Students must plan their courses in accordance with the requirements of the diploma for which they are working. No student may take more than six class hours per week, four being generally preferable.

ADMISSION

Candidates for the C.A. diploma (see page 3936) must have matriculation standing and are required to submit their High School certificate to the Registrar of the University for evaluation prior to enrolment for the courses. A cheque for $2.00, made out to McGill University, must accompany this submission. The requirements for admission to other diploma courses will be found on page 3938.

Students without training or experience in accounting and auditing will be required to follow the syllabus of courses in the order shown in Table I. The examinations in the courses constituting the First year must be passed (the pass mark is 60%) before proceeding to the courses of the Second year.

Students with previous training or experience in accounting and auditing may be permitted to register at an advanced level. Application for admission to advanced standing must be made in writing to Professor K. F. Byrd, Purvis Hall, McGill University. Evidence to substantiate one's claims must accompany this letter.

ATTENDANCE

Regular attendance at lectures is required. A student who has been absent through illness must present a medical certificate at the next lecture he attends. If he has been sent out of town on business, a letter from his employer is required, for first-term absences, not later than the

TABLE I. COURSES OF INSTRUCTION FOR THE EXAMINATIONS OF VARIOUS ORGANIZATIONS

	McGill University Licentiate in Accountancy (for B.Com. only)	Institute of Chartered Accountants of Quebec	Society of Industrial and Cost Accountants	Chartered Institute of Secretaries	General Accountants' Association
	Year	Year	Year	Year	Year
C111 Mathematics of Finance	..	1	1	..	1
C141 General Economics	..	1	..	..	1
C161 Elements of Accounting	..	1	1	1	1
C231 Commercial Law	..	2	..	..	2
C241 Labour and Industrial Legislation	..	..	2	..	..
C251 Industrial Organization	..	2	..	..	..
C261 Intermediate Accounting, Part I	..	2	2	2	2
C351 Fundamentals of Cost Accounting	..	..	3	..	..
C361 Intermediate Accounting, Part II	..	3	3	3	3
C362 Intermediate Auditing	..	3	..	..	3
C441 Industrial Management	..	..	4	..	4
C451 Advanced Cost Accounting	..	..	4	..	..
C461 Final Accounting and Auditing, Part 1A	1	4	..	..	4
C462 Final Accounting and Auditing, Part 1B	1	4	..	..	4
C561 Final Accounting and Auditing, Part IIA	2	5	..	..	5
C562 Final Accounting and Auditing, Part 11B	2	5	..	..	5

Note: The years indicated are intended as a general guide and are not be to regarded as necessarily applicable in all circumstances.

first lecture after Christmas, and for second-term absences by the last lecture of the academic year. The signature of an authoritative individual is required, not merely the firm name. Students whose unexcused absences exceed one-eighth of the lectures will not be permitted to write the examinations.

WINTER RECESS, JANUARY 20TH TO MARCH 1ST, inclusive

Owing to the preoccupation of accounting offices with business matters during this period, no classes in any of the "C" courses will be held.

REGISTRATION

Registration and payment of fees by mail begins on Tuesday, September 3rd, 1956, and students are urged to register early by this means. On Wednesday, September 18th, and Wednesday, September 25th, Professor Byrd will be available in the Arts Building from 6 to 9 p.m. for consideration of special cases requiring exemptions, examination of certificates, etc. Registration of special cases will be deferred until these dates.

Candidates for the R.I.A. Two evenings have been set aside, Monday, September 16th, and Monday, September 23rd, from 5:30 to 9 p.m., for interview and registration of students wishing to proceed to the R.I.A. Diploma. *ALL R.I.A. students must register on one or other of these evenings.*

On these evenings, representatives from the Educational Committee of the Society of Industrial and Cost Accountants of Quebec and representatives from the McGill Extension Department will be present to advise and register students and receive course fees. Candidates for the R.I.A. will be given the opportunity of becoming Student Members of the S.I.C.A.; of subscribing to the Society Journal; and of purchasing required text books. In addition to course fees, the student will require approximately $20.00 for books and student membership in the Society.

Day Registration in person will be on the third floor, Dawson Hall, from 9 a.m. to 4 p.m., Monday, September 9th, to Monday, October 14th, inclusive.

Evening Registration in person will be in the Registrar's Office on the ground floor, Dawson Hall, from 5.30 to 8.30 p.m., on Monday and Wednesday from September 16th to October 14th.

Late Registration Fee: A late fee of $5.00 for each course will be charged on all registrations after October 16th. Registration will be closed for all courses on November 20th.

TEXTBOOKS

Information concerning textbooks and multigraphed notes required in the courses may be obtained from the lecturer at the first lecture.

PROBLEM ASSIGNMENTS AND CLASS TESTS IN ACCOUNTING AND AUDITING COURSES

There will be problem assignments each week which will be turned in by the student and recorded. A number will be marked during the year and these will count for 15 percent of the final mark. There will also be a class test during the year which will count for another 15 percent. The examination at the end of the course will count for 70 percent of the year's work. Supplemental examinations will be marked out of 100—credit gained on problems and class tests being no longer applicable.

SPRING EXAMINATIONS, ACCOUNTING AND AUDITING COURSES.

An examination in each course will be held in the spring. The pass mark in each course is 60 percent. Candidates who fail to pass the examination in the spring will be permitted to write a supplemental examination in August. Candidates failing to pass the latter examination will be required to repeat the course in which they have failed and will not be permitted to register in the succeeding course.

In other courses the pass mark will be 60 percent.

Examination results will be sent out by mail from the School of Commerce as soon as possible after each examination. *They cannot be obtained by telephoning.*

SUPPLEMENTAL EXAMINATIONS

Supplemental examinations in accounting and auditing will be held in late August for students who fail in any of the examinations in the spring. No student will be permitted to enter the courses in Intermediate Accounting, Parts I and II, Intermediate Auditing, and Final Accounting and Auditing, Part I, without having passed all examinations in the accounting and auditing courses preceding, unless he has been specifically exempted therefrom.

All applications for re-examination must be made to the Director of the School of Commerce before July 1st, if results are known, accompanied by a cheque for $10.00 made out to McGill University, and must include a statement as to the year in which the classes were taken.

DIPLOMA OF THE INSTITUTE OF CHARTERED ACCOUNTANTS OF QUEBEC

The Institute of Chartered Accountants of Quebec conducts its own qualifying examinations but requires that candidates must have previously

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passed the University examinations for the courses, as set out in Table I. As a prerequisite to recognition of these evening courses for admission to its own examinations the Institute requires the student to register with it and for this purpose the student must have obtained a junior matriculation standing recognized by McGill University. To obtain such recognition the student must present his matriculation certificate to the University Registrar before enrolment for the courses. See page 3933.

Details relative to registration, apprenticeship and other matters concerning the Institute may be obtained from

The Institute of Chartered Accountants of Quebec,
Chartered Accountants Building,
630 Lagauchetiere Street West,
Montreal.

C. D. Mellor, C.A., Executive Secretary.

The normal plan of studies for one who attempts to obtain a diploma requires five years, paralleling the five years of apprenticeship in the office of a practising chartered accountant.

Examinations

The Institute of Chartered Accountants of Quebec has two sets of qualifying examinations: Intermediate Accounting and Auditing, and Final Accounting and Auditing. Both sets of examinations are held annually in October. These examinations are conducted by the Institute under its own regulations. Applications to sit for these examinations must be made to the Secretary of the Institute, with proof that the necessary requirements have been met.

The Intermediate Accounting and Auditing examinations consist of four papers and are normally taken after three years of evening study.

Before sitting for these examinations, the candidate must have passed the following course examinations:

Elements of Accounting
Intermediate Accounting, Part I
Intermediate Accounting, Part II, and Intermediate Auditing
Mathematics of Finance
Commercial Law
Economics
Industrial Organization

In practice the Institute allows students who have written and failed in *one* only of the non-accounting courses to carry that course forward as a supplemental until after he has written his Intermediate C.A. examination for the first time. If he fails in that examination he is not then allowed to sit again until he has passed the supplemental examination in the course carried forward.

The Final Accounting and Auditing examinations consist of six papers, three in Accounting and three in Auditing, and are taken only after all of the course examinations have been passed.

DIPLOMA OF THE SOCIETY OF INDUSTRIAL AND COST ACCOUNTANTS

The Society of Industrial and Cost Accountants has three sets of qualifying examinations for its diploma, Registered Industrial Accountant (R.I.A.).

Primary Examination

(a) Accounting 1.

(b) Business Mathematics.

Intermediate Examination

(a) Accounting 2.

(b) Fundamentals of Cost Accounting

Final Examination

(a) Industrial Organization and Management.

(b) Industrial Legislation.

(c) Advanced Cost Accounting.

(d) Cost Accounting Thesis.

The student may prepare for these qualifying examinations by following the courses shown under this heading in Table I.

Particulars may be obtained from Professor D. R. Patton, Chairman of the Co-ordinating Educational Committee of the Society, WE. 7362.

OTHER ASSOCIATIONS

For information about the Chartered Institute of Secretaries, write or telephone the Honorary Secretary, P. T. R. Pugsley, Suite 14, The Linton, 1509 Sherbrooke Street West. Telephone WE. 7362.

The General Accountants' Association provides for two sets of qualifying examinations: (a) Intermediate and (b) Final, leading to its

diploma. For further details, telephone the Secretary, James G. Finnie, C.G.A., 5336 Queen Mary Road, Montreal. Telephone HU. 9-3232.

COURSES IN ACCOUNTING, AUDITING AND RELATED SUBJECTS

C111. MATHEMATICS OF FINANCE. Professors Herbert Tate, C. D. Solin and L. P. Wood, Department of Mathematics. 25 lectures of 2 hours each, Wednesdays at 6 p.m., beginning September 25th. Arts Building. Fee $50.00.

Syllabus: Review of fundamentals, logarithms, arithmetic and geometric progressions. Percentage, simple and compound interest, averaging accounts, annuities certain, sinking funds, perpetuities and capitalization, bonds, amortization tables, instalment purchases, depreciation, simple business statistics. *Texts:* H. Tate, *Elementary Mathematical Analysis* (Pitman); *Mathematical Theory of Interest* (Pitman).

C141. GENERAL ECONOMICS. Professor E. F. Beach, Department of Economics and Political Science. 20 lectures of 2 hours each, Thursdays at 6 p.m., beginning September 26th. Arts Building. Fee $40.00.

Syllabus: Employment and income theory; government fiscal policy; money, banking and monetary controls; competition, monopoly, and international trade. *Text:* Samuelson, *Economics* (McGraw-Hill).

C161. ELEMENTS OF ACCOUNTING. Messrs. Kenneth C. Fincham, A. H. Howson, G. D. Rediker and D. H. Ladd. 25 lectures of 2 hours each, one evening per week at 6 p.m.: Mondays beginning September 23rd or Tuesdays beginning September 24th. Arts Building. Fee $50.00. *A pass in this course is prerequisite to Intermediate Accounting, Part I.*

Syllabus: Introduction to Books of Account and Financial Statements; theory of debit and credit; principles of double entry; the accounting cycle; recording of transactions in the general journal and general ledger; principles of control accounts; Accounts Receivable and Accounts Payable ledgers; provision for bad debts and cash discounts; use of special books of original entry including cash receipts and cash payment books, cheque register, sales and purchase journals and voucher register; distinction between capital and revenue expenditure; accounting for petty cash; bank reconciliation statements; notes and bills of exchange; inventories; preparation of Profit and Loss Accounts or statements and Balance Sheets, with adjusting and closing entries.

Texts: Tunick and Saxe, *Fundamental Accounting* (Prentice-Hall); Thompson, *Canadian Supplement to Principles of Accounting, Introductory* (Prentice-Hall).

C231. COMMERCIAL LAW. Mr. R. Stewart Willis. 25 lectures of 2 hours each, Thursdays at 8 p.m., beginning September 26th. Arts Building. Fee $50.00.

Syllabus: Law of contracts, sale, agency, partnership, company law, negotiable instruments, and bankruptcy.

Texts: Civil Code; British North America Act (consolidation); *Companies Act* (Canada and Province of Quebec); *Bankruptcy Act.*

C241. LABOUR AND INDUSTRIAL LEGISLATION. Mr. Marc C. Lapointe. 25 lectures of 2 hours each, Mondays at 6 p.m., beginning September 23rd. Arts Building. Fee $50.00.

Syllabus: General provisions of the civil law concerning legal relationship between employers and employees. Individual contracts between employers and employee. Contractual Relationship and Government Regulations: Collective labour agreements governed by the Professional Syndicates Act; agreements governed by the Labour Relations Act; individual contracts governed by the Minimum Wage Act; the Quebec Trade Disputes Act, the Public Services Employees Disputes Act, and the act respecting municipal and school corporations and their employees; labour unions and employers' associations—their certification, negotiation, conciliation, arbitration; the Provincial and Federal laws governing strikes and lock-outs. Ancillary Laws: Review of the so-called social laws. Each lecture will be followed by a practical application of the theory presented. *Text: Code of Labour and Industrial Laws*, 1956 edition (G. Francq).

C251. INDUSTRIAL ORGANIZATION. (C.A. Students.) Mr. T. C. Arnold. 25 lectures of 2 hours, Tuesdays at 8 p.m., beginning September 24th. Arts Building. Fee $50.00.

This course is intended to give the student an understanding of the complexities of organization in an industrial enterprise. Subjects dealt with include: ownership; board of directors; profession of management; centralization and decentralization; line and staff; principles of organization; differentiation of major activities including finance, sales, production, personnel etc. *Text:* Jamieson, *Business Policy* (Prentice-Hall).

C261. INTERMEDIATE ACCOUNTING (PART I). Messrs. G. D. Boyd, P. M. Brophey and Stanley Hitzig. 25 lectures of 2 hours each, one evening per week at 6 p.m.: Tuesdays beginning September 24th or Thursdays beginning September 26th. Arts Building. Fee $50.00. *A pass in this course is prerequisite to Intermediate Accounting (Part II).*

Syllabus: Revision of the work of the First year at a more advanced level. Partnerships: accounting for formation, distribution of profits;

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admission and withdrawal of partners including treatment of goodwill and bonus; partnership dissolution and liquidation; default of a partner; sale of a partnership to a limited company. Manufacturing accounts and statements; the elements of cost; periodic and perpetual inventories; transfer of goods to trading department at a price in excess of factory cost and adjustment of inventories. Single entry; books and accounts required; preparation of financial statements from single entry data; conversion to double entry.

Texts: Smails, *Accounting Principles and Practice* (Ryerson); Karrenbrock and Simons, *Intermediate Accounting—Standard Volume* (South Western); *Companies Act (Canada)* (Queen's Printer).

C351. FUNDAMENTALS OF COST ACCOUNTING. Mr. E. H. Veinish. 20 lectures of 2 hours each, Mondays at 8 p.m., beginning September 23rd. Arts Building. Fee $40.00.

Syllabus: Purposes of cost accounting; elements of cost; process cost systems; job cost systems; controlling accounts and the cost records; accounting for materials; material storage and consumption; perpetual inventories and stores control; valuation of materials; accounting for labor cost; wage systems; accounting for manufacturing expense; distribution of manufacturing expense to production; the cost to make and sell; sundry forms; monthly closing entries; preparations of operating and financial statements; cost reports.

C361. INTERMEDIATE ACCOUNTING (PART II). Professor A. R. Marshall, School of Commerce, and Mr. Donald W. Cook. 25 lectures of 2 hours each, Thursdays at 6 p.m., beginning September 26th. Arts Building. Fee $50.00.

Syllabus: More advanced treatment of the work of the first two years. Consignment accounts; joint ventures; instalment sales; branch accounts. Financial statements: analysis and interpretation, methods of presentation, statements of source, and application of funds. Reconstruction and reorganization of limited companies; mergers and amalgamations; holding companies and subsidiaries; minority interests. Consolidated statements.

Text: Karrenbrock and Simons, *Advanced Accounting—Comprehensive Volume* (South Western).

C362. INTERMEDIATE AUDITING. Professor A. R. Marshall and Mr. I. R. Sterling. 25 lectures of 2 hours each, Tuesdays at 6 p.m., beginning September 24th. Arts Building. Fee $50.00.

Syllabus: Definition; accounting and auditing distinguished; objects and advantages of different classes of audit. Detailed consideration of auditing theory; internal check and the auditor; the rights, duties, and

responsibilities of auditors with reference to leading decisions in the courts; the discovery of errors and fraud; requirements under the Dominion and Quebec Companies Acts; divisible profits and dividends. Audit procedure at all stages, vouching and verification, checking the postings, auditing the final accounts; programmes and working papers, audit certificate and reports. Reference throughout to bulletins of the Canadian Institute of Chartered Accountants, in relation also to those of the accountancy profession in the United States and Great Britain.

Texts: Holmes, *Basic Auditing Principles* (Irwin); Smails, *Auditing* (Pitman).

C441. INDUSTRIAL MANAGEMENT. (R.I.A. students.) Dr. F. D. Barrett. 25 lectures of 2 hours each, Mondays at 8 p.m., beginning September 23rd. Arts Building. Fee $50.00.

This course is designed to provide a clear picture of the principles, approaches, and some of the more important techniques involved in the management of industrial enterprises. The course deals with legal forms, planning and financing of an enterprise, internal organization, methods and control in factory operations, industrial and personnel relations and administration, accounting and financial control, and marketing and sales administration. *Text:* Bethel, Atwater, Smith and Stackman, *Industrial Organization and Management* (McGraw-Hill).

C451. ADVANCED COST ACCOUNTING. Mr. P. P. Aspinall. 20 lectures of 2 hours each, Mondays at 6 p.m., beginning September 23rd. Arts Building. Fee $40.00.

This course is designed for those having a fundamental knowledge of Cost Accounting principles and procedure. It covers advanced instructions in costing problems, records, and practices, and cost accounting in relation to inventories, budgetary control, and other devices of the various departments of a business, including the following: estimating cost systems; principles of standard costs; standard cost procedure; variances; cost ratios; budgetary control; static and variable budgets; differential cost analysis; special considerations and debatable methods; distribution and marketing costs; cost reports; graphic charts; machine accounting; current cost developments.

FINAL ACCOUNTING AND AUDITING, PART I. (Part I should be passed before the student takes Part II.)

C461. PART 1A. Mr. Norman Cohen and Mr. J. Richer. 25 lectures of 2 hours each, Tuesdays at 6 p.m., beginning September 24th. Engineering Building. Fee $50.00.

Note: Lectures up to the date of the Intermediate C.A. examinations in mid-October will revise for those examinations.

Auditing and Investigations. Further treatment of the work of the Third year. Investigations for fraud; certification of profits for prospectus purposes; for sale of business by sole traders, partnerships, limited companies, with valuation of goodwill; valuation of shares; schemes of conversion to limited company; schemes of amalgamation(consolidation) and absorption (merger); pooling schemes; schemes of reorganization and reconstruction.

Income Tax, Bankruptcy and Liquidation, Executorship Accounts

Income Tax: Principles and legal provisions (Dominion and Provincial) and their application to the problems of assessment of individuals, partnerships, and limited companies. Particular attention to the loss carry-back and carry-forward provisions, the treatment of capital cost allowances, the avoidance of double taxation of undistributed income, personal corporations. Payments of tax by individuals, partnerships, and limited companies. Objections and appeals: the income tax special court and higher courts.

Bankruptcy and Liquidation: Receiver's accounts; the marshalling of assets and liabilities; the statement of affairs; statement of realization and liquidation; the duties of the trustee.

Executorship Accounts: Accounting for capital and income in deceased estates; statements of charge and discharge; calculation of succession duties (Dominion and Provincial).

Texts: Stettler, *Auditing Principles* (Prentice-Hall); J. Palen, *Report Writing for Accountants* (Prentice-Hall); Gilmour, *Income Tax Handbook* (DeBoo); *Income Tax Act (Consolidated)* (C.C.H.); *Bankruptcy Act, 1949* (Queen's Printer); *Dominion Succession Duties Act, 1940/41* (Queen's Printer).

C462. PART IB. Professor D. R. Patton, School of Commerce, and Mr. J. Richer. 25 lectures of 2 hours each, one evening per week at 6 p.m.: Mondays beginning September 23rd or Wednesdays beginning September 25th (Arts Building); Thursdays beginning September 26th *for Licentiates only* (Engineering Building). Fee $50.00.

Note: Lectures up to the date of the Intermediate C.A. examinations in mid-October will revise for those examinations.

Advanced Accounting. Further treatment of the work of Third year. Preparation of consolidated accounts of Holding and Subsidiary Companies, including sub-subsidiaries. More advanced treatment of amalgamations (consolidations) and absorptions (mergers), including intercompany holdings; accounting for capital reorganization and reconstruction. Advanced accounting theory in general.

Cost Accounting. Definition of cost accounting, its aims and objects, elements of cost accounting for the purchase, storage and issue of materials; accounting for labour; schemes of remuneration of labour including incentive schemes, co-partnership and profit-sharing; accounting for overheads, with methods of apportionment to departments, and production; double entry cost accounting; job costs; process costs; estimating cost systems; standard costs and accounting for variances; closing the accounts at balance sheet date, preparation of operating statements.

Budgetary Control. Preparation of the budget including flexible budgets.

Texts: Finney and Miller, *Principles of Accounting—Advanced* (Prentice-Hall); Neuner, *Cost Accounting* (Irwin).

FINAL ACCOUNTING AND AUDITING, PART II.

C561. PART IIA. Professor Kenneth F. Byrd. 25 lectures of 2 hours, Thursdays at 6 p.m., beginning September 26th. Engineering Building, Fee $50.00.

Advanced accounting and auditing problems, including special reference to insurance companies, municipalities, stockbrokers, banks, and investment trusts.

Texts: Paton, *Corporation Accounts and Statements* (Macmillan).

C562. PART IIB. Mr. H. O. Spindler. 25 lectures of 2 hours each, one evening per week, Mondays at 6 p.m., beginning September 23rd. Arts Building. Fee $50.00.

Criticism of operating statements and balance sheets; reports and report writing; investigations; systems and considerations in the accounting and audit of special industries (additional to those covered under Part IIA); taxes and licences; income and profits taxes.

Texts: Gilmour, *Income Tax Handbook* (DeBoo); *Income Tax Act Consolidated* (C.C.H.); Province of Quebec, *Income Tax* and *Corporations Tax Act.*

Note: Passes in the examinations of Courses C461, C462, C561 and C562 are prerequisite to sitting for the final examinations in Accounting and Auditing of the Institute of Chartered Accountants of Quebec.

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SECTION D

DIPLOMA IN

MANAGEMENT AND BUSINESS ADMINISTRATION

(IN COOPERATION WITH THE SCHOOL OF COMMERCE)

INTRODUCTION. To meet the demand for the more advanced and broader training required by those graduates whose work is primarily administrative and managerial, the Extension Department offers a series of courses leading to a Diploma in Management and Business Administration. This series includes a number of courses which should prove of great interest to the business community.

In addition to a group of required courses which form the foundation for this advanced work, a series of elective courses in a number of different fields is available.

While the courses in this series are intended for graduates in Engineering, Arts, Science, Commerce and Law who are fully employed in business or industry, and only such persons may be candidates for the Diploma, individual courses are open to the public and anyone may register for them.

ADMISSION. While all of the courses in this series are open to anyone interested, a candidate for the Diploma in Management and Business Administration must complete a special application form obtainable from the Extension office and submit it when registering. Each diploma candidate must submit a transcript of his undergraduate record prior to completion of his first year's work.

No candidate for the M.B.A. Diploma will be permitted to register for more than three courses a year, but anyone may take less than three courses and thereby spread the work over more than three years.

REQUIREMENTS FOR THE M.B.A. DIPLOMA

(1) Candidates must have a B.A., B.Com., B.Eng., B.Sc., B.C.L. or equivalent degree.

(2) Candidates must complete at least 45 units (a unit is 10 lecture hours) with a mark of not less than 60 percent in any course.

(3) Thirty-five units must be completed from the list of required courses and the remaining ten units from the list of elective courses.

(4) Exemptions from *required* courses will be considered for equivalent work already completed at McGill University or elsewhere. In making application for exemptions, the student must submit a transcript of his undergraduate record.

No credit will be granted for *elective* courses already taken at McGill University or elsewhere.

(5) Elective courses may not be taken for credit until all courses prerequisite to those electives have been completed.

REGISTRATION AND FEES. See page 3907.

EXAMINATION REGULATIONS. An examination in each course will be held in the spring. For diploma candidates the pass mark is 60 percent, but the University grants a certificate to all candidates who obtain a mark of 50 percent or more.

Candidates who fail to pass the spring examination will be permitted to write a supplemental examination in August.

Candidates failing to pass the supplemental examination will be required to repeat the course. All applications for re-examination must be made in writing to the Director of University Extension before August 1st, accompanied by a cheque made out to McGill University.

The fee for each supplemental examination is $10.00.

D1. ECONOMIC ANALYSIS OF BUSINESS. Professor Donald E. Armstrong, Department of Economics and Political Science. 25 lectures of 2 hours, Tuesdays at 8 p.m., beginning October 8th. Engineering Building. Fee $50.00.

Syllabus: The classification of markets. The determination by the firm of demand, costs, and production. The formulation of policies regarding such matters as price, advertising, inventories, and packaging. *Texts:* Scitovsky, *Welfare and Competition* (Irwin); Dean, *Managerial Economics* (Prentice-Hall).

D2. PRINCIPLES OF ACCOUNTING AND COST DETERMINATION. Lecturer to be announced. 25 lectures of 2 hours, Wednesdays at 6 p.m., beginning October 9th. Engineering Building Fee $50.00.

Syllabus: The meaning of accounting and its essential functions and scope; the relation of accounting to other fields, with particular reference to economics. The financial picture of business enterprises as revealed by the accountant. Methods of financing capital requirements. Principles of cost accounting and its relation to general accounting; consideration of the elements of cost, materials, labour and overhead expenses, and

CURRICULUM — DIPLOMA IN MANAGEMENT AND BUSINESS ADMINISTRATION

YEAR

1
- Economic Analysis of Business
- Principles of Accounting and Cost Determination
- Administrative Practices

2
- Elements of Marketing
- Corporation Finance
- Industrial Production*
- Canadian Economic Policy**

3
- Business Policy

plus any TWO courses from the list below to add a combined total of at least 10 units.

ACCOUNTING	ADMINISTRATION	FINANCE	PERSONNEL	MARKETING
Canadian Income Tax	Organization and Operation of a Small Business	Money and Banking	Business and Industrial Psychology	Sales Management
Machine Accounting	Business Statistics	Investment Analysis	Personnel Administration I***	Retail Management
Electronic Data Processing	Operations Research	Insurance	Personnel Administration II***	
	Automation		Industrial Relations I	
			Industrial Relations II	

*Required by Commerce graduates
**Required by Engineering graduates
***Not offered in 1957-58.

their control; essential principles of standard costing and budgetary control. *Text:* Robinett, Hill and Beckett, *Accounting: A Management Approach* (Irwin).

D3. ADMINISTRATIVE PRACTICES. Messrs. Alexander Winn and Robert M. Dealy, Aluminum Company of Canada. Two classes of 25 2-hour lectures on Mondays at 6 p.m., beginning October 7th, and Tuesdays at 8 p.m., beginning October 8th. *Applicants must indicate clearly, when registering, the class they wish to take.* Engineering Building. Fee $50.00 each class.

This course has as its objective the development of those individual attitudes and ways of thinking about human situations which are essential for effective administration. Classroom work will consist of discussion and analysis of numerous concrete "cases". These situations will be described and the people involved, their actions, relationships and conflicts, will be studied. The procedure in analyzing such problems and the essential basis for making sound decisions about them will be discussed. *Text:* Glover and Hower, *The Administrator*, 3rd edition, 1957 (Irwin).

D4. CANADIAN ECONOMIC POLICY. Professor Donald E. Armstrong. 25 lectures of 2 hours, Wednesdays at 6 p.m., begining October 9th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Syllabus: Employment theory and income analysis; business and government policy designed to stabilize employment and prices; the control of competition and monopoly; the effect of policy on incentives, economic development, and growth.

D5. ELEMENTS OF MARKETING. Mr. H. Arnold Steinberg. 25 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This is an elementary course dealing with the general principles of marketing and their application. Each lecture period will be divided into two parts: the first hour will be devoted to general marketing principles presented by the lecturer, while the second hour will be given to group discussion through the extensive use of the case method. *Syllabus:* The consumer; industrial buyers; marketing institutions; choice of channels; brand policy; pricing, marketing management; market research; sales programs. *Text:* Hanson, *Marketing Text and Problems* (Richard D. Irwin).

D6. CORPORATION FINANCE. Mr. James D. Kadlec. 25 lectures of 2 hours, Thursdays at 6 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

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This course will include a detailed study of the field of Corporation Finance including the legal forms of business organization, formation and control of the Corporation, Corporation Stock, Corporation Bonds, factors determining the forms of capital structure, financial aspects of promotion, the organized security exchanges, and long and short term finance generally. Treatments for financial failure, including corporate merger, consolidation and reorganization, will also be studied. *Texts:* Guthman and Dougall, *Corporate Financial Policy* (Prentice-Hall); Hunt and Williams, *Case Problems in Business Finance* (Irwin).

D7. **INDUSTRIAL PRODUCTION.** Dr. F. D. Barrett. 25 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This course will deal with specific case material from industry focussing attention on specialization, simplification, standardization, diversification, expansion, contraction and integration; on raw materials purchasing and supply, plant location and layout, job standards and wage payment methods, and production personnel organization; on product development, production planning and scheduling, and control of raw material inventory and product quality. *Text:* Franklin E. Folts, *Introduction to Industrial Management* (McGraw-Hill).

D8. **BUSINESS POLICY.** Professor W. H. Pugsley. 25 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Business Policy covers the fields of policy-making and administration at the level where objectives are set for the Company as a whole, and departmental policies and activities are co-ordinated. Selected business case histories will be dealt with covering the top management viewpoint: problems, policies, plans and personalities; sizing up situations: formulating policies and planning programs of action; organizing administrative personnel and putting plans into action; control, day-to-day administrative problems, follow-up and reappraisal. Emphasis is placed on the over-all point of view to bring out how any section or department of a business will be managed to make the most effective contribution to the business as a whole. *Text:* Smith & Christensen, *Policy Formulation and Administration*, revised edition, 1955 (Irwin).

D9. **CANADIAN INCOME TAX.** Mr. Charles McLaughlin, Canadian Industries Limited. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $40.00.

Syllabus: The law and practice of Canadian Income Tax, Dominion and Provincial. Preparation of assessments of individuals, partnerships and limited companies. Special consideration of deductions allowed and

not allowed, capital cost allowances (depreciation), business losses, foreign tax allowance. Taxation of undistributed income of limited companies. Treatment of the income of estates and trusts. Taxation of non-residents. *Texts: Canadian Income Tax Act; Canadian Income Tax Regulations; Canadian Income Tax Problems* (C.C.H.Canadian Ltd.).

D11. MACHINE ACCOUNTING. Mr. T. S. Kennedy, Canadair Limited. 10 lectures of 2 hours, Wednesdays at 6 p.m., beginning October 9th. Physical Sciences Centre, 3450 University Street. Fee $20.00.

This course in Punched Card accounting is intended for students and others who have a sound knowledge of accounting principles. It is intended to show how problems attendant on a large volume of transactions or entries can be solved by the proper use of punch card machines and methods. Introductory sessions will be devoted to the background and development of punch card accounting and its advantages, as well as a discussion of the types of machines available. These will be followed by theoretical and case-history discussions on various accounting applications such as sales analysis, billing, inventory control, accounts receivable and payable, etc.

D14. ELECTRONIC DATA PROCESSING. Mr. George Glinski, Electrodata Division, Burroughs Adding Machine of Canada, Ltd. 25 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Syllabus: Business data processing, integrated data processing, electronic data processing. Digital computer systems: computer organization and components, auxiliary equipment, devices for origination, transmission, translation and storage of data. Problem formulation: clerical and managerial business problems and their mathematical formulation. Programming of electronic computers. Functional applications: payroll, inventory control, billing, cost accounting, production control, scheduling. Survey of business applications: banking, insurance, utilities, merchandizing, transportation, manufacturing. Computer selection and implementation.

D22. ORGANIZATION AND MANAGEMENT OF A SMALL BUSINESS. Mr. Bernard B. Lax, Dominion Securities Corporation Ltd. 25 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This course involves a general study of the operation of small businesses, with particular attention to identifying business opportunities, and the development and organizational problems within the small firm. *Texts:* Kelley and Lawyer, *How to Organize and Operate A Small Business* (Prentice-Hall); Grimshaw, *Problems of the Independent Businessman* (McGraw-Hill).

D23. BUSINESS STATISTICS. Mr. Martin Hollinger. 15 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $30.00.

Syllabus: Objectives and bases of statistical analysis; statistical data and its presentation; rates, ratios and percentages; arithmetic and geometric progressions; frequency distributions; measures of central tendency, dispersion and skewness; analysis of time series, seasonal secular, cyclical and irregular movements; index numbers; simple correlation; elementary sampling theory; applications of statistical methods to business and economic problems; sources of economic and social data. Elementary mathematics review and practice assignments will be provided. *Text:* Croxton and Cowden, *Practical Business Statistics*, 2nd ed. (Prentice-Hall).

D24. INTRODUCTION TO OPERATIONS RESEARCH: TECHNIQUES, TOOLS AND APPLICATIONS. Mr. George Glinski. 25 lectures of 2 hours, Tuesdays at 8 p.m., beginning October 8th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Syllabus: Scientific method, models. Techniques: linear programming, probability theory, mathematical statistics and sampling theory, theory of games, time series analysis, regression theory and forecasting techniques, statistical decision theory, queuing theory, Monte Carlo method, information theory, symbolic logic. Tools: electronic computers, analog computers, digital computers. Applications: inventory control, production control, systems and procedures planning, marketing and sales forecasting, long-range planning, economics. Organization of operation research.

D25. AUTOMATION IN PLANT AND OFFICE. Dr. J. J. Brown, Industrial Automation Limited. 25 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This course is a general introduction to automation, with particular emphasis on the problems it poses to management of large and small companies. Descriptive and non-technical, the course will cover the classes, origins, and uses of individual automata for production or information handling; their combination into systems at various levels; and the application of these systems to production of goods, and to mechanization of paper work. Automation in service industries such as banking will be studied, as well as automatic factories of the past and present. Stress will be laid on basic principles to guide management through the transition from hand-controlled to automatic operations in office and factory. Some probable economic and social consequences of automation will be considered.

D31. BUSINESS AND INDUSTRIAL PSYCHOLOGY. Professor George A. Ferguson, Department of Psychology. 20 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $40.00.

This is a survey course in the application of psychological methodology to problems of business and industry; psychological aspects of industrial organization, employee attitudes and morale, employee testing and interview techniques, training, merit rating, wage and salary administration, fatigue and efficiency, industrial accidents, labour management relations, advertising and market research.

D37. INDUSTRIAL RELATIONS I. Professor H. D. Woods, Director, Industrial Relations Centre. 10 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Physical Sciences Centre, 3450 University Street. Fee $20.00.

This course will provide an introduction to the problems of labour relations in industrial society. An attempt will be made to understand the nature of industrial conflict, the emergence of the institutions of collective bargaining, the bargaining process itself, the role of the state in labour relations and the framework of law which has been developed. Consideration will be given to the nature of the collective agreement and its administration. Some of the major issues in collective bargaining will be examined. *Text:* Kornhauser, Dubin and Ross, *Industrial Conflict* (McGraw-Hill).

D38. INDUSTRIAL RELATIONS II. Mr. G. W. Campbell, Merck & Co. 10 lectures of 2 hours, Tuesdays at 6 p.m., beginning January 21st. Fee $20.00.

This course will be concerned with Industrial Relations problems in practice. Case study illustrations will be used to highlight principles involved in collective bargaining. Administrative procedures involved in the application of the law of labour relations, the bargaining process, handling of grievances, conciliation machinery, arbitration, contract writing, and the strike will be the principal topics of discussion.

D40. MONEY AND BANKING. Mr. H. C. Byleveld, Bathurst Power and Paper Co. Ltd. 25 lectures of 2 hours, Thursdays at 8 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Syllabus: Evolution and kinds of money; its two basic functions. The purchasing power of money; inflation and deflation. Ends and means of monetary policy. The Bank of Canada and the chartered banks. Interest rates and the business cycle. Foreign exchange. Recent monetary developments in Canada. *Text:* George N. Halm, *Economics of Money and Banking* (Irwin).

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D42. INVESTMENT ANALYSIS. Mr. S. A. Jarislowsky. 25 lectures of 2 hours, Wednesdays at 8 p.m., beginning October 9th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This course deals with security analysis and investment techniques, covering the different types and classes of securities. The sources of information, methods of compiling statistics, and assessment of comparative values are discussed, together with portfolio objectives and differing philosophies of investment management. Broad economic trends, and international political climates affecting security values are analyzed. *Text:* Graham and Dodd, *Security Analysis*, 3rd edition (McGraw-Hill).

D43. INSURANCE. Mr. Martin Hollinger, of H. W. Hollinger, Insurance Counselors. 25 lectures of 2 hours, Thursdays at 6 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This survey course covers the main principles and practices of the insurance industry. It is designed to be of practical value to everyone and particularly to those who require a knowledge of insurance in their business and professional undertakings. The study of contracts is emphasized.

Syllabus: Social and economic functions of insurance; underlying principles; life insurance—group, pensions; fire insurance—direct damage, extended coverages, consequential losses; ocean and inland marine; casualty—liability, theft, surety; automobile and aviation; miscellaneous other property coverages; health and accident; structure of the industry; public regulation; losses and claims; recent trends; executive programming. *Text:* Riegel and Miller, *Insurance Principles and Practices*, 3rd edition (Prentice-Hall).

D51. SALES MANAGEMENT. Mr. Richard Edsall, Marketing Consultant. 25 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

Syllabus: An analytical study of the techniques and policies employed in the operation of a sales organization. The approach is from the viewpoint of marketing executives of an enterprise. Extensive use will be made of lectures and case materials in considering the problems of merchandising, promoting, planning, organizing and controlling the sales activities of companies. *Text:* Canfield, *Sales Administration* (Prentice-Hall).

D52. RETAIL MANAGEMENT. Mr. Harry Suffrin, Steinberg's Limited. 25 lectures of 2 hours, Mondays at 8 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $50.00.

This course is designed to cover major areas of retail managerial responsibility. Areas such as store location, store layout, retail advertising, personnel policies, and buying practices will be considered. Particular attention will be given, by the use of the case method, to the development of individual capacities to manage retail activity. Case study will be supplemented by a series of guest lectures by retail business leaders. *Text:* Duncan and Phillips, *Retailing: Principles and Methods* (Irwin); David E. Faville, *Selected Case Problems in Retailing* (Prentice-Hall).

SECTION E

COMMUNITY SERVICE COURSES

ENGLISH FOR THE NON-ENGLISH-SPEAKING

PART I

CERTIFICATE OF PROFICIENCY IN SPOKEN AND WRITTEN ENGLISH. A certificate of proficiency in spoken and written English will be granted on the successful completion (75% or higher in the Third year examination) of three of the four courses in Part I. Students may take either the First year (Beginners) or the more advanced regular First year course, followed by the Second year course, and finally the Third year course. Those who have attained *real fluency* in the language before attending these courses may sometimes be admitted to the Second year. The number of students per class is definitely limited. Each class consists of 25 periods of 1½ hours each week and the fee is $38.00. All classes will be held in the Arts Building.

FIRST YEAR (Beginners)

Prerequisite: Literacy in student's own language. This First year (Beginners) course is designed for *real* beginners in English. Less will be attempted and the pace will be slower than in the regular First year course. Students who successfully complete this Beginners' course may, however, usually proceed to the Second year in the following session. *Texts:* Eckersley, *Essential English*, Book I (Longmans). (N.B. Bilingual introductions to Essential English I are available in French, Spanish, Polish, Dutch and Norwegian.) I. A. Richards, *English Through Pictures* (Pocket Books); Eckersley, *A Concise English Grammar* (Longmans); Dodd, *Fables and Stories for Beginners* (Macmillan); Dodd, *Folk Tales from Different Lands* (Macmillan); *Gulliver's Travels* and *Seven Little*

Plays (Longmans); Harrop, *English Phonetic Word Book; English Pronunciation Exercises; An English Phonetic Reader, Book I; Easy Comprehension Pieces. Recommended dictionary: The Advanced Learner's Dictionary* (Oxford).

E1. Instructor: Miss Ann Robson.
Time: Thursdays, 6.30 p.m., beginning October 10th.

E2. Instructor: Mr. J. G. Harris.
Time: Mondays, 8 p.m., beginning October 7th.

FIRST YEAR

Prerequisite: Ability to understand and write simple English and to speak it with some fluency. This course begins at the elementary level but much more will be attempted than in the Beginners' course, the rate of learning will be faster, and the reading material of a higher level. Great stress will be laid on correct pronunciation and accentuation. The symbols of the International Phonetics Association are taught as a guide to pronunciation. A good deal of written work is done. *Texts:* Eckersley, *Essential English*, Books I and II (Longmans). (N.B. Bilingual introductions to Essential English I are available in French, Spanish, Polish, Dutch and Norwegian.) Eckersley, *A Concise English Grammar* (Longmans); *Peter the Whaler* (Longmans); Ed. by Dodd, *Lost Horizon* (Macmillan); Ed. by Dodd, *Nicholas Nickleby* (Macmillan); Harrop, *English Phonetic Word Book; English Pronunciation Exercises; An English Phonetic Reader*, Book I; *Easy Comprehension Pieces. Recommended dictionary: The Advanced Learner's Dictionary* (Oxford).

E4. Instructor: Professor L. B. Harrop.
Time: Mondays, 7 p.m., beginning October 7th.

E5. Instructor: Miss Alison Groom.
Time: Tuesdays, 6.30 p.m., beginning October 8th.

E6. Instructor: Professor Gaston Stegen.
Time: Thursdays, 6.30 p.m., beginning October 10th.

E7. Instructor: Miss Jean Deery.
Time: Wednesdays, 8.15 p.m., beginning October 9th.

SECOND YEAR

Prerequisite: Either of the First year Certificate Courses, *or* real fluency in spoken and written English, and preferably a knowledge of International Phonetics. In the Second year the stress is on idiom and

usage, with continued formal grammatical exercises. More difficult grades of reading material are studied. *Texts:* Eckersley, *Essential English*, Book III; *Concise English Grammar* (Longmans); Judd, *Exercises in English* (Longmans); Harrop, *English Phonetic Word Book; English Pronunciation Exercises; Dictation, Comprehension and Précis Pieces; An English Phonetic Reader*, Book II; *More Tales of Crime and Detection* (Oxford); *The Golden Argosy* (Bantam). *Recommended reference books: The Advanced Learner's Dictionary* (Oxford); Worrall, *English Idioms* (Longmans); Palmer, *A Grammar of English Words* (Longmans).

E9. Instructor: Professor L. B. Harrop.
Time: Mondays, 8.30 p.m., beginning October 7th.

E10. Instructor: Miss Alison Groom.
Time: Wednesdays, 6.30 p.m., beginning October 9th.

E11. Instructor: Mrs. Lorna MacLean.
Time: Mondays, 7 p.m., beginning October 7th.

E12. Instructor: Miss Ann Robson.
Time: Thursdays, 8 p.m., beginning October 10th.

THIRD YEAR

Prerequisite: The regular Second year Certificate Course, Intermediate or Advanced Conversation, *or* English Composition for Business Writing. This course presupposes a fluent command of English. In the Third year the stress will be on the finer points of syntax, idiom, and intonation. The student will also be introduced to some modern English novelists and playwrights.

Texts: Eckersley, *Essential English*, Book IV, and *Concise English Grammar* (Longmans); Judd, *Advanced Exercises in English* (Longmans); Harrop, *English Pronunciation Exercises; Dictation, Comprehension and Précis Pieces; An English Phonetic Reader*, Book III; Clarke, *Modern English Writers* (Longmans); Forster, *A Passage to India* (Penguin); A. Scotland, *A Mirror of the Times*, Book I (Odhams); *Modern Plays* (Everyman's Library). *Recommended reference books:* Jones, *Everyman's English Pronouncing Dictionary* (Dent); Palmer, *A Grammar of English Words* (Longmans); Worrall, *More English Idioms* (Longmans); Millington-Ward, *The Use of the Tenses in English* (Longmans).

E14. Instructor: Professor L. B. Harrop.
Time: Thursdays, 7 p.m., beginning October 10th.

PART II

COURSES IN ORAL ENGLISH

ENGLISH CONVERSATION FOR BEGINNERS. 20 periods of 1½ hours. Class limited to 22 students. Fee $30.00.

This class, for those whose knowledge of English is non-existent or extremely limited, will use the Direct Method approach, especially during the early lessons. The aim will be to enable the student to use fluently, and with good pronunciation, a limited vocabulary and stock of essential phrases and speech patterns. *Texts:* Hornby, *Progressive English for Adult Leaners,* Book I (Oxford); Ed. by Dodd, *Folk Tales from Different Lands* (Macmillan); Harrop, *English Phonetic Word Book; English Pronunciation Exercises; Easy Comprehension Pieces;* subscription to "*English Illustrated*". *Recommended reference book: The Advanced Learner's Dictionary* (Oxford).

E20. Instructor: Mr. Alexander Harvey.
Time: Mondays, 6:30 p.m., beginning October 7th.

ENGLISH CONVERSATION, ELEMENTARY. 20 periods of 1½ hours. Class limited to 22 students. Fee $30.00.

This conversation course will give practice in easy spoken English to students taking the First year course, or those who are at an equivalent level. Pronunciation drills will be an important feature of the class work. Simple reading matter (including an illustrated newspaper) will be read and discussed. *Texts:* Allen, *Living English Structure* (Longmans); Ed. by Dodd, *Discoveries of New Lands* (Macmillan); Wells, *The First Man in the Moon* (Longmans); Harrop, *English Pronunciation Exercises; Graded Comprehension Pieces;* subscription to "*English Illustrated*". *Recommended reference book: The Advanced Learner's Dictionary* (Oxford).

E22. Instructor: Miss M. E. Simpson.
Time: Tuesdays, 8.30 p.m., beginning October 8th.

E23. Instructor: Mrs. Mildred Brocklehurst.
Time: Wednesdays, 6.30 p.m., beginning October 9th.

E24. Instructor: Miss Jean Deery.
Time: Thursdays, 6.30 p.m., beginning October 10th.

ENGLISH CONVERSATION, INTERMEDIATE. 20 periods of 1½ hours. Class limited to 22 students. Fee $30.00.

More advanced English conversation based on everyday situations, and discussions arising out of the reading of a Canadian magazine, stories and plays. Special attention will be given to the correction of errors of pronunciation and intonation. *Texts:* Palmer and Blandford, *Everyday Sentences in Spoken English* (Heffer); Harrop, *English Pronunciation Exercises; Graded Comprehension Pieces;* Allen, *Living English Structure* (Longmans); McNicol, *Six Men of Business* (Oxford); Doorly, *The Radium Woman* (Puffin); Greene, *The Living Room* (Heinemann); *MacLean's Magazine. Recommended reference books: The Advanced Learner's Dictionary* (Oxford); Eckersley, *Concise English Grammar* (Longmans); Worrall, *English Idioms* (Longmans).

E26. Instructor: Miss Margery Simpson.
Time: Tuesdays, 7 p.m., beginning October 8th.

E27. Instructor: Mr. J. G. Harris.
Time: Thursdays, 8 p.m., beginning October 10th.

E28. Instructor: Mrs. Helen Temple.
Time: Mondays, 8 p.m., beginning October 7th.

E29. Instructor: Mr. E. G. Davies.
Time: Tuesdays, 8 p.m., beginning October 8th.

ENGLISH CONVERSATION, ADVANCED. 20 periods of 1½ hours. Class limited to 22 students. Fee $30.00.

This course will encourage really advanced students to converse freely on topics of general interest. A weekly newspaper and modern plays will be read and discussed. Special attention will be paid to the correction of errors of pronunciation, intonation, syntax and idiom. *Texts:* Allen, *Living English Structure* (Longmans); Palmer and Blandford, *Everyday Sentences in Spoken English* (Heffer); Priestly, *Three Time Plays* (Pan); A. Scotland, *A Mirror of the Times*, Book II (Odhams); Harrop, *English Pronunciation Exercises; Graded Comprehension Pieces;* subscription to the weekly edition of *The Manchester Guardian. Recommended reference books:* Jones, *Everyman's English Pronouncing Dictionary* (Dent); Vallins, *Good English* (Pan); Millington-Ward, *The Use of the Tenses in English* (Longmans); Worrall, *More English Idioms* (Longmans).

E30. Instructor: Dr. Monica Harvey.
Time: Thursdays, 8.15 p.m., beginning October 10th.

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E31. Instructor: Mrs. Lorna MacLean.
Time: Mondays, 8.30 p.m., beginning October 7th.

E32. Instructor: Dr. Mary Winspear.
Time: Tuesdays, 8 p.m., beginning October 8th.

PART III

COURSES IN ENGLISH COMPOSITION FOR BUSINESS WRITING

These courses offer a detailed study of English grammar and syntax of business phrases and terminology, and of the composition of various types of business letters. Particular attention is given to the English words, idioms, and usage which experience has shown to present difficulty to those who learn English as a foreign language *Correct pronunciation and conversational usage are stressed* Students are expected to prepare written assignments, which will be corrected and returned. These courses are intended for those who have completed two or more years of study in the English language courses offered at McGill or for those who have had an equivalent amount of formal instruction in the English language. Each class consists of 25 lectures of 1½ hours. Fee $38.00.

INTRODUCTORY COURSE IN ENGLISH COMPOSITION FOR BUSINESS WRITING. *Texts:* Warner, *Business Letter Writing* (Pitman); Miller, *A Grammar of Modern English* (Longmans); Allen, *Living English Structure* (Longmans); Harrop, *Graded Comprehension Pieces; English Pronunciation Exercises;* Gowers, *The Complete Plain Words* (H.M.S.O.). *Recommended reference books: The Advanced Learner's Dictionary* (Oxford); Palmer, *A Grammar of English Words* (Longmans); Vallins, *Good English* (Pan).

E33. Instructor: Dr. Monica Harvey.
Time: Thursdays, 6.30 p.m., beginning October 10th.

ADVANCED COURSE IN ENGLISH COMPOSITION FOR BUSINESS WRITING. *Texts:* Warner, *Business Letter Writing* (Pitman); Miller, *A Grammar of Modern English* (Longmans); Allen, *Living English Structure* (Longmans); Harrop, *Graded Comprehension Pieces* and *English Pronunciation Exercises;* Gowers, *The Complete Plain Words* (H.M.S.O.); Eckersley and Kaufmann; *English and American Business Letters* (Longmans). *Recommended reference books: The Advanced Learner's Dictionary* (Oxford); Vallins, *Better English* (Pan); Millington-Ward, *The Use of the Tenses in English* (Longmans).

E34. Instructor: Professor Kathleen Vaughan.
Time: Tuesdays, 6 p.m., beginning October 8th.

RAPID READING

E48. RAPID READING. Professor Margaret E. Nix, Department of Health and Social Medicine. 15 lectures of 1½ hours, Mondays and Thursdays at 6 p.m., beginning October 7th. Chemistry Building. Fee $23.00. Class limited to 35.

This course is designed to increase one's speed in reading. Those whose reading rate is approximately 200 words a minute can, with practice, double this rate by the end of course. *Text:* Stroud and Adams, *Improving Reading Ability* (Appleton-Century-Crofts).

E49. RAPID READING. Identical with the above, but beginning January 20th, 1958.

E50. SPEAKING IN PUBLIC. Mr. Donald N. Byers, Q.C. 20 lectures of 1½ hours, Thursdays at 6.45 p.m., beginning October 10th. Engineering Building. Fee $30.00. Class limited.

This course is primarily for people with no previous experience in public speaking and is designed to give the students as much practice in speaking as possible. Each lecture period will commence with a ten-minute address by the instructor, who will cover, amongst other things, the preparation and delivery of a speech, how to introduce and thank speakers, the duties of a chairman, and procedure at meetings. During the course, in addition to the prepared speeches that students will be asked to give, they will also introduce and thank speakers and take part in short debates.

E51. SPEAKING IN PUBLIC. Identical with the above. Time: Thursdays at 8:15 p.m., beginning October 10th.

Applicants must indicate clearly, when registering, the class they wish to take.

E52. HOW TO INVEST YOUR MONEY IN SECURITIES. (In co-operation with the Education Committee of The Investment Dealers' Association of Canada.) Messrs. W. J. Piper, A. G. MacKinnon, J. A. Weldon, J. D. Gibson, W. Y. Soper and S. C. Scobell. 10 lectures of 1½ hours, Wednesdays at 8 p.m., beginning January 22nd. Fee $20.00.

This course has been designed to give the uninitiated a working knowledge of investment principles and practices. The course is suitable either for the person who knows little or nothing about investment or for the person who is already an investor and wishes to learn more about the subject. The various types of securities available in Canada will be

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described and analyzed. The lecturers will also discuss such topics as the development of an investment program, the management of the investment portfolio and the interpretation and use of financial statements.

Lectures will be of 45 minutes duration and will be followed by a question period.

E53. MODERN PHARMACY. Lecturers from McGill Faculty of Medicine and Montreal hospitals. 20 lectures of 1½ hours, Wednesdays at 7 p.m., beginning October 9th. Chemistry Building. Fee $30.00. Special leaflet on request.

Two lectures will be devoted to each of the following topics: Tranquilizing drugs; geriatrics; histamine release by tertiary and quaternary amines; epidemics, past, present and future; respiration and respiratory drugs; obstetrics and gynecology; recent antibiotic therapy; collagen diseases; nutrition and diet control; coagulants and anti-coagulants.

E55. MATERIAL HANDLING I (Elementary). Mr. Donald B. Barry, Dominion Engineering Works Limited. 15 lectures of 2 hours, Mondays at 8:15 p.m., beginning October 21st. Physics Building. Fee $30.00.

This course is designed to introduce the student to the fundamentals of material handling. *Syllabus:* Fundamentals, selection of equipment, industrial trucks and handling equipment, overhead handling, fork truck, conveyors, plant layout, analysis, reports and industrial solutions. Included will be discussions, films, reading assignments and problems. *Text:* J. Francis Carle, *Material Handling, Vols. I and II* (Lincoln Extension Institute (Canada) Ltd.)

E56. MATERIAL HANDLING II (Warehousing). Mr. Harold G. Worley, Canadian Industries Limited. 15 lectures of 2 hours, Mondays at 8 p.m., beginning October 21st. Engineering Building. Fee $30.00.

This course is directed to the student who has completed Material Handling I, or who has a good basic knowledge of the subject. Particular emphasis is placed on the selection, application, and replacement of equipment, and warehouse layout and operation. Included in the course are discussions, slides and films, problems and reading assignments. *Text:* John Immer, *Materials Handling* (McGraw-Hill).

E57. MATERIAL HANDLING III (Industrial). Mr. Frank G. Bogert, Trans Canada Airlines. 15 lectures of 2 hours, Mondays at 8 p.m., beginning October 21st. Engineering Building. Fee $30.00.

This course is directed to the student who has completed Material Handling I, or who has a good basic knowledge of the subject. Particular

emphasis is placed on industrial material handling as opposed to warehousing. Topics to be dealt with are plant layout, materials handling analysis, selection and application of equipment, and typical industrial solutions based on case history films. *Texts:* J. Francis Carle, *Material Handling, Vol. II* (Lincoln Extension Institute (Canada) Ltd.).

E58. INTRODUCTION TO INDUSTRIAL INSTRUMENTATION. Professor Edward J. Stansbury, Department of Physics. 20 lectures of 2 hours, Tuesdays at 6 p.m., beginning October 8th. Engineering Building. Fee $40.00.

This course is designed to provide the background knowledge required for Course E59. The basic ideas involved in measurements of temperature, pressure, flow of liquids and gases, liquid level, and electric current are explained. Also discussed are other physical phenomena, such as magnetism, elasticity, thermo-electric effects, and thermal expansion, which control the instruments used to measure the primary quantities.

E59. INDUSTRIAL INSTRUMENTATION II. Lecturers from The Instrument Society of America, Montreal Chapter. 20 lectures of 2 hours, Thursdays at 6 p.m., beginning October 10th. Engineering Building. Fee $40.00.

These lectures are directed to technicians and engineers who wish to obtain a working knowledge of instruments and controls as applied to chemical, petroleum, food, pulp and paper, metals and power industries. *Syllabus:* Principles and applications of industrial measuring instruments and automatic control systems; flow metering, level measurement, temperature measurement and pressure measurement.

E60. SUPERVISORY TRAINING. Mr. H. R. Filiatrault, Hydro Quebec. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Engineering Building. Fee $40.00.

This is a course for the training of supervisors. The following topics will be discussed: Principles of organization, the supervisor's job, supervisory problems, effective action; the employee and his viewpoint, understanding people, individual adjustment; induction, training, safety, health, discipline, reprimands, grievances, commendations, planning, job evaluation, job briefing, interviewing, counseling.

E61. PUBLIC RELATIONS. Mr. Monty Berger, Canadian Industries Limited. 10 lectures of 1½ hours, Thursdays at 8 p.m., beginning October 10th. Physical Sciences Centre, 3450 University Street. Fee $15.00. Class limited.

This course is aimed at broadening the experience and horizons of those already in the field of Public Relations and those proposing to enter it. A number of speakers experienced in public relations work will provide the basis for case history assignments. The conference-workshop technique

will be employed in alternate sessions. The following aspects of public relations will be considered: Public relations in industry, in the community; public relations and utilities; public relations and labor unions; public relations as a career—opportunities and qualifications.

E62. CUSTOMS AND EXCISE TARIFFS OF CANADA. (In cooperation with the Canadian Industrial Traffic League Inc. and the Canadian Importers and Traders Association.) 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Physical Sciences Centre, 3450 University Street. Fee $40.00.

This course is designed to give the layman an understanding of the Canadian Customs Tariffs and to assist importers and all persons directly affected by the operation of the Regulations and Procedures of Canadian Customs Administration to obtain a wider knowledge and interpretation of these regulations. The course begins with lectures on the history and the economic theory of the Customs Tariffs, and then goes on to cover in detail the organization and functions of the Department of Government directly concerned with Tariff preparation and the administration of our Customs Laws. Each speaker is a leading authority on his particular phase of the subject.

E63. PACKAGING MATERIALS AND PROCESSES. (In cooperation with the Educational Committee of the Packaging Association of Canada.) Mr. Wm. H. Morton, E.S. & A. Robinson (Canada) Ltd., and others. 20 lectures of 2 hours, Mondays at 6 p.m., beginning October 7th. Physics Building. Fee $40.00.

This course will deal with the properties, characteristics and uses of all packaging materials available to industry today. Particular attention will be given to paper making, folding and set-up boxes, packaging machinery, glass bottles and jars, moulded plastics, metal and fibre cans, films, foils and converting, inks and printing processes, adhesives, corrugated and wood containers. The instruction will comprise lectures, motion pictures, demonstrations, and case histories. Practical demonstrations of the packaging industry at work will be given to students through extra-curricular plant tours.

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Coat-of-Arms

THE PATENT OF ARMS for McGill University, which was granted by the Garter-King-at-Arms in 1922, provides for a coat of arms which is heraldically described as follows:

> *"Argent three Martlets Gules, on a chief dancette of the second an open book proper garnished or bearing the legend 'In Domino Confido' in letters Sable between two crowns of the first. Motto: 'Grandescunt Aucta Labore'."*

The three red martlets on a silver ground are taken from the arms of James McGill, with the colours reversed, while the motto on the open book, "In Domino Confido" (In God I trust), was originally his personal motto. The open book itself, which is naturally drawn against a red background and trimmed in gold, is the heraldic symbol of an institution of learning, while the three peaks at the top of the lower half of the shield represent the three mountains of Montreal. The silver crowns on either side of the book, which refer to the royal name of the city, are composed of fleur-de-lis to suggest its French origin, and the University motto, "Grandescunt Aucta Labore," may aptly be translated "By work all things increase and grow."

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THE ARTS BUILDING

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MONTREAL, CANADA

Faculty of Arts and Science

FRENCH SUMMER SCHOOL

DIRECTOR

PROFESSOR ANDRÉ RIGAULT

41st SESSION:

27th JUNE - 9th AUGUST, 1957

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Post Graduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, School of Household Science, and School for Teachers)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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Thaddée ROMER, Officier de la Légion d'Honneur, Licencié ès Sciences Politiques et Sociales (Lausanne): Administrative Assistant to the Chairman of the Department of Romance Languages and Assistant Professor of French, McGill University; *Assistant Director of the School*

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Maurice RABOTIN, B. ès L., Licencié ès Lettres (Paris); Lecturer in French, University of Alberta

André RAFFESTIN, B. ès L., Certificats d'Etudes Supérieures de Lettres (Paris); Diplômé de l'Institut National d'Etude du Travail et d'Orientation Professionnelle (Paris), Lauréat du Conservatoire National des Arts et Métiers (Paris)

Mlle Marie-Thérèse REVERCHON, O.I.P., B. ès L., Licenciée ès Lettres (Paris), Diplômée d'Etudes Supérieures (Paris), Certificat d'Aptitude à l'Enseignement dans les Lycées, Agrégée de l'Université de France; Assistant Professor of French, McGill University

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In addition to the regular Resident Staff, Assistant Instructors will be appointed as necessary, in order to keep classes down to a size compatible with maximum teaching efficiency.

GROUP LEADERS

The *French Song Groups* will be conducted by M. Gabriel Charpentier.

The leader of the *French Dramatic Group* will be Mme Lilyane Dariosecq.

The Editor of *Chantecler* (the weekly French paper produced by the Staff and Students of the School) will be M. Maurice Rabotin.

VISITORS

As in the past, the School will have the honour of entertaining French diplomatic representatives and other distinguished French and Canadian men and women residing in or passing through Montreal. All students will have an opportunity of conversing with the visitors and asking them questions on subjects of topical interest.

The School extends a cordial invitation to American University Professors of French who may be spending their vacations in Canada, and to their Canadian colleagues. They will always be welcome at the School, and the Director will be glad to authorize them to attend any lectures in which they may be interested, or, if space permits, to spend a few days in the refreshing atmosphere of the French House.

"MONTRÉAL, — UNE GRANDE MÉTROPOLE D'UN MILLION ET DEMI D'HABITANTS, DONT LES DEUX-TIERS SONT DES CANADIENS DE LANGUE FRANÇAISE . . . CE N'EST PAS SANS RAISON QUE L'ON A PU DIRE: MONTRÉAL EST LA PLUS GRANDE VILLE FRANÇAISE DU MONDE APRÈS PARIS."

THE FRENCH SUMMER SCHOOL OF McGILL UNIVERSITY

The McGill French Summer School is an old-established institution. Its first session dates back to 1904 and it has functioned uninterruptedly since 1922. It is the only School conducted on the McGill campus during the summer. An integral part of the Faculty of Arts and Science, its credit-carrying courses are of college and university standard, leading to graduate degrees in French.

THE UNIVERSITY AND ITS CULTURAL ENVIRONMENT

McGill University was established by Royal Charter in 1821 and carries on, in Canada, British traditions of education. It is situated in Montreal, the largest city of the historic Province of Quebec, where the language and much of the culture of Old France persist. Montreal is a modern cosmopolitan city, too, the centre of an active and growing contemporary culture which expresses itself in a distinctive literature and art.

The French Summer School of the University enjoys great advantages in consequence of its situation in Montreal and French Canada. Nowhere save in the Province of Quebec can we find on the North American continent a community that uses French as its native tongue, finds its inspiration in French literature and drama, and obtains its daily news from French newspapers and French radio announcers. The environment naturally has a French atmosphere.

THE AIMS OF THE SCHOOL

The School is designed for all who desire to take courses of lectures on French thought, literature, or civilization, *and at the same time gain a practical working knowledge of the language.*

High School Seniors will find it the best preparation for College courses.

University or college undergraduates may take lectures and language courses which are equivalent to regular college courses.

University graduates and teachers of French desirous of perfecting their knowledge of the language and literature have an opportunity to take advanced courses of graduate standard.

Those who desire to study for a Master's degree at McGill University itself without being able to attend the regular winter sessions of the University are offered a programme which can be spread over four summers

and which, when supplemented by the regular thesis in French, leads to the McGill M.A. degree.

Besides those with such professional interest, there are many who love the language and literature of France for its own sake and wish to continue studying the subject in favourable surroundings. The School accommodates these persons in its courses insofar as they are qualified for the particular courses they wish to take.

FEATURES OF THE 1957 SESSION

1. A new course: METHODS OF TEACHING SPOKEN FRENCH.

This is a course planned for teachers and prospective teachers in high schools and colleges.

Emphasis will be laid on the spoken aspect of the French language. The course will show why spoken French should be taught first, at beginners' level: both experience in the teaching of modern languages and research in the field of linguistics prove that a mastery of the spoken language greatly facilitates the acquisition of the written language. Language is a set of habits, the acquisition of which requires repeated listening, imitation, and memorization.

The considerable help teachers can find in using recordings at *all* levels in order to make their teaching more vivid will be stressed. Most of French literature, although printed, belongs in fact to the spoken language. How could we appreciate a poem merely by silent reading? Much of poetry is based on the harmonious combination of sounds and rhythms. A play is not designed primarily to be read, but acted; and a good recording, in the absence of actual performance, adds much to the comprehension and appreciation of theatrical masterpieces. Even numerous works in prose take on new life when they are read aloud or listened to. When we come to the field of moving pictures and radio, speech is of the utmost importance.

The course will study and discuss the methods of teaching spoken French as well as the use of audio-visual aids and equipment.

(See description of the course on page 34.)

2. Course on FRENCH IN DIPLOMACY AND PROTOCOL TO-DAY.

For centuries French has been the only diplomatic language, and still is one of the main languages used in diplomatic circles as well as in international organizations and conferences.

In order to help the growing number of university students contemplating diplomatic or international careers, last year's French

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Summer School offered for the first time a specialized course on French in diplomacy and protocol to-day.

The course met with great success as the registration limit (20) was soon reached and 10 applicants were subsequently turned away.

On account of the very favourable response it received both from students and diplomats, *the course will be offered again this year.*

Like other French Summer School courses, it will be given entirely in French. The instructor will be a professor with twenty-five years' experience in diplomatic service, including positions of responsibility at the highest governmental level.

(See description of the course on page 33.)

3. Language Practice Laboratory

While the more advanced students will, as previously, use the equipment of the Phonetics Laboratory in the Arts Building, the less advanced, who need considerable aural-oral practice to acquire fluency, may avail themselves of the Language Practice Laboratory, which will, for their benefit, be set up in the Library of Douglas Hall. This laboratory consists of turntables equipped with earphones allowing groups of three to work with the same record at the same time, and tape-recorders with which students can check their own pronunciation. Lessons which have been taught in the lecture room in the morning will be available in record form in the afternoon and, it is hoped that the laboratory will be in constant use. It is not intended to replace the voice of the instructor, but it will allow students doing their assignments constantly to associate the spoken with the written words. Experience has shown that this will speed their progress considerably.

All records will be cut by staff members, and some courses (for instance, Courses 1, 3, 4, 13, 14 and 32) will be recorded in their entirety.

4. French Song Groups

An Instructor has been especially appointed to lead groups in the singing of French and French-Canadian songs. The value of singing in a foreign language as an approach to the sounds and rhythms of the language cannot be too much stressed, and all students are advised to avail themselves of this opportunity to learn French "par la joie."

5. Dramatics

The School has always been noted for the polish and ingenuity of the production of their French plays, and all the students who

acted in them have agreed that the experiment had considerably improved their confidence in the use of spoken French.

The benefits accruing from this should not be limited to a few advanced students, but should be available to the whole student body. To increase the possibility of gaining this valuable experience, a number of easy, short scenes will be offered by Section A and B students. They will be performed, arena-style, before the final examinations take place, and it is hoped that students of all Sections will take advantage of this opportunity to improve their spoken French by this vivid and direct method.

6. Evening Lectures

In order to give students opportunities to listen to fresh voices and, at the same time, broaden their knowledge of the cultural background of present-day France and Canada, a number of evening lectures, open to students, guests, and friends of the School, have been arranged.

M. Guy BOULIZON, *Directeur adjoint des éditions à la librairie Beauchemin, professeur de littérature française à l'Université de Montréal*, will bring our knowledge of French Canadian Literature up to date in his lecture:

Le Roman canadien-français contemporain

M. André MALAVOY, *Licencié ès Lettres, Diplômé de l'École des Sciences Politiques (Paris), directeur d'agence de voyage*, has chosen for his topic:

Les grandes cathédrales gothiques de France

M. Guy VIAU, *Assistant Professor of Fine Arts at McGill University, Art Critic, and Art Commentator on the TV Network of the C.B.C.*, will give two lectures on the most representative modern French and Canadian painters. His talks will be illustrated with coloured slides and their subjects will be:

1. *L'École française moderne de peinture*
2. *Coup d'oeil sur la peinture canadienne*

7. Music and Drama from Television

Artistic life in Montreal is improving in quality at an amazing rate, and is making the Canadian Metropolis a cultural centre which compares most favourably with any French city in Europe—except Paris itself. In any case, Montreal is the headquarters of French culture on this continent.

One aspect of this artistic life, the French TV network of *Radio-Canada*, offers a great variety of productions of the highest quality. We thought our students would very much enjoy watching a selection of *Télé-Théâtre*, a most appreciated weekly feature.

At our request, the French Television Network of *Radio-Canada* has granted us special permission to present kinescopes (16mm talkies) of the best theatrical performances given over TV during the 1956-1957 season in Montreal.

These shows, to be presented in the French House during the session, will be strictly private and open only to French Summer School Staff and students.

It is too early to give a definite programme at the time this announcement goes to press. However, to give an idea of the quality of the plays to be presented, here are some of the *Télé-Théâtres* shown during previous sessions:

—*Les Fourberies de Scapin*, by Molière.

—*La Double inconstance*, by Marivaux.

—*Le Mariage de Figaro*, by Beaumarchais.

—*Le Voyage de M. Perrichon*, by Labiche and E. Martin.

—*L'Heure espagnole*, by Maurice Ravel.

8. Tour of Montreal

At the beginning of the session, one afternoon will be devoted to a brief bus tour of Montreal. The programme will include a visit to the University of Montreal, the St. Lawrence rapids, the Lachine canal, and various other sight-seeing points. Several famous shrines and the port of Montreal will also be visited and refreshments will be served (these are included in the $1.00 cost of the trip).

9. Excursion to Quebec City

As the majority of the students will be paying their first visit to the Province of Quebec, it is expected that most of them will not want to leave it without first seeing the ancient fortress-city of Quebec and touring the delightful country which has been—and still remains—the spiritual, cultural, and national centre of French-Canada.

To help them derive the maximum benefit and enjoyment from the School—and to provide some much-needed relaxation after three weeks of courses—an excursion to Quebec will be organized in the middle of the session.

The journey to and from Quebec will be made by rail (special coach). Overnight accommodation in Quebec City will be provided.

Students will have a chance to discover for themselves the charm of the city on Saturday evening. On the Sunday morning, the group will take buses for conducted visits of the Plains of Abraham, the Citadel, and the Houses of Parliament. A short run will take them to the Montmorency Falls and the famed shrine of Ste. Anne de Beaupré, where lunch will be served at the Pilgrim's Guest House. The afternoon programme will include a visit to Lac Beauport and the Provincial Zoological Gardens at Charlesbourg where can be seen, in picturesque surroundings, many specimens of the wild fauna of Northern Canada. The return trip to Montreal will take place on Sunday evening.

This will be the major School-sponsored excursion, and as it requires considerable preparation, students are urged to make their reservation on Registration Day.

The cost of the Quebec excursion, covering transportation, accommodation, fees, and meals, has been kept down to $19.00.

THE THREE SECTIONS

The individual courses consist of three class sessions per week in the form of lectures and of small groups for language practice. They are arranged in three grades of increasing difficulty, designated respectively as:

SECTION A (Elementary)
SECTION B (Intermediate)
SECTION C (Advanced)

Courses in SECTION C are counted, in certain circumstances, toward the M.A. degree in French at McGill University (see page 4033).

For M.A. students special research colloquia may be arranged.

ADMISSION REQUIREMENTS

General: For the courses of each Section there are certain admission requirements which are described below in terms of college standing, but the School accepts any equivalent preparation through travel or residence in France or through private study. NO BEGINNERS ARE ADMITTED, since a working, even if limited, knowledge of the language is required for admission to Section A. On the day of registration each student is interviewed by members of the teaching staff who recommend the section and the courses for which he is best prepared.

Section A (Elementary):

Candidates are normally required to have completed two years of high school French, or one year of College French, or the equivalent.

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Section B (Intermediate):

Candidates are normally required to have second or third year college standing. They must have a fair knowledge of French grammar, a working vocabulary of 1200 to 1500 words, and some degree of facility in the spoken language.

Section C (Advanced):

Candidates are normally required to have fourth year college standing. They must have the ability to speak French fluently and have a general knowledge of French literature.

AGE AND HEALTH REQUIREMENTS

The School cannot accept students who are still *under 16 years of age* on the day of Registration (27th June).

Students suffering from a physical disability should write confidentially to the Director and inform him in advance of their condition. He will advise them whether or not their registration can be accepted.

Students under medical treatment cannot be accepted if the latter entails nursing attention or a special diet which the School cannot provide.

OPENING DATE

The School will open on Thursday, June 27, and close on Friday, August 9.

Students in residence at the French House will be permitted to spend the night of June 26-27 in the residence *provided* that they give due notice to the School Secretary and arrive between 5 P.M. and 10 P.M. on June 26.

No meals will be served before breakfast on June 27.

REGISTRATION

Registration will take place in the Arts Building, on Thursday, June 27.

Students will register according to the following schedule:

Students in residence at Douglas Hall:

(*a*) *Section A students* will register on the morning of Thursday, June 27 from 9:30 A.M. to 12:30 P.M.

(*b*) *Section B and Section C* students will register on the afternoon of Thursday, June 27 from 2:30 P.M. to 5:30 P.M.

Non-resident Students:

All non-resident students will register on the morning of June 27 from 9:30 A.M. to 12:30 P.M.

Lectures will begin at 9 A.M. on Friday, June 28. The Opening Ceremony will take place in the evening of Thursday, June 27, in the common-room of Douglas Hall (French House).

Special arrangements will be made for teachers who are unable to leave their duties in time to reach Montreal for registration on the first day, provided that they give due notice of the delay in their arrival.

FEES

Tuition fee for full-time students	$135
Residence (room and board)	160
Fee for a three-hour course taken as a partial course	30
Deposit fee required on application and afterwards deducted from total fee	25
Quebec excursion and Montreal Tour (optional)	20

FEES FOR M.A. STUDENTS (see page 4036)

FEES ARE PAYABLE IN CANADIAN FUNDS. As the Announcement goes to press, the rate of exchange is approximately 96 Canadian cents to one U.S. dollar (or $1 Canadian = $1.04 U.S.)

Students should pay all fees in cash or by cheque drawn on a Canadian Bank at the time of registration.

After registration has taken place, no fees will be refunded to any student who:

(*a*) leaves the School without permission of the Director or Assistant Director;

(*b*) is dismissed from the School by the Dean.

Should a student's presence be required at home during the session (in case of illness or domestic affliction), he must first obtain permission to leave from the Director or the Assistant Director. A refund of fees will later be arranged according to the circumstances of each individual case.

CORRESPONDENCE

All correspondence concerning the French Summer School should be addressed to:

The Secretary, French Summer School,
Arts Building,
McGill University,
Montreal 2, Canada.

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APPLICATIONS, ACCOMPANIED BY A LETTER OF RECOMMENDATION AND A DEPOSIT FEE OF $25.00 IN CANADIAN FUNDS, SHOULD BE RECEIVED BEFORE JUNE 15. The deposit fee will subsequently be deducted from the candidate's fee. It may be withdrawn on or before that date. In case of cancellation after June 15, it will be held until the following session, after which it will be forfeited.

Students intending to stay in the French House should apply as early as possible.

VETERANS

The School has been approved as one of the recognized institutions where U.S.A. and Canadian Veterans may continue their studies. The School tuition fees will therefore be paid by the Department of Veterans' Affairs provided that:

(*a*) U.S. students obtain a Certificate of Eligibility from their local Veterans' Administration Agency.

(*b*) Canadian students obtain a Certificate of Eligibility from their local D.V.A. representative.

The Certificate of Eligibility should be delivered to the Cashier at the time of registration. Failing this, the fees must be paid in full, subject to refund when the Certificate is received.

Veterans in residence will be required to pay the $25.00 deposit fee, which will be deducted from the residence charge as the latter will NOT be paid for by D.V.A.

STATUS OF STUDENTS IN THE SCHOOL

(1) FULL-TIME STUDENTS: those paying the full tuition fee and taking the number of courses necessary to qualify for the Certificate.

(2) PARTIALS: those registering for fewer than five courses.

M.A. STUDENTS are considered as full-time throughout the four sessions leading to the degree, since they pay the full tuition fee.

A partial student may not hold a scholarship.

Full-time students receive priority in room reservation. Partials may be accommodated in the French House only after the registration of regular students has been completed and if space permits.

SCHOLARSHIPS AND PRIZES

Eight scholarships will be offered for the 1957 session of the French Summer School.

I. *Seven scholarships*—granted by McGill University and the French Government—the value of which usually varies from $75 to $135 will be offered to students of colleges and universities in Canada and the United States;

II. *A $150 scholarship*, offered by the Secretariat of the Province of Quebec, will be specially reserved for an English-speaking Canadian who teaches French in a Canadian high school, college, or university.

These scholarships are open only to those students who:

(a) are qualified to enter the intermediate or the advanced section;

(b) undertake to reside at the French House during the session;

(c) take the courses and final examinations necessary for the French Summer School Certificate.

Applications for scholarships should reach the School Secretary on or before May 30. Each application should be supported by

(a) an official transcript of grades sent by the Registrar of the institution attended by the applicant;

(b) TWO confidential letters of recommendation sent *direct* to the Director of the School (Arts Building, McGill University).

Successful applicants will be notified before June 10.

At the School Closing Exercises, a number of book and other prizes will be awarded to students obtaining the highest grades in the final examinations.

FINAL EXAMINATIONS

A final examination is held in each course at the end of the session. Students are strongly recommended to take the final examinations, which are open to partial as well as to full-time students.

Students who fail to write examinations receive no marks, and their work and progress at the School cannot be assessed formally.

No substitute examinations can be arranged in any circumstances whatever.

THE FRENCH SUMMER SCHOOL CERTIFICATE

The curriculum leading to the FRENCH SUMMER SCHOOL CERTIFICATE in any of the three Sections is a definite programme of study which always includes practical work with the language. It aims at building an organized knowledge of the major aspects of the subjects.

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At the same time it is sufficiently flexible to be adapted to the previous training, aptitudes, and interests of individual students. For this reason members of the Staff advise each student at Registration. Their guidance is also available to those who do not wish to try for the Certificate.

The Certificate is a document bearing the signatures of the Dean of the Faculty of Arts and Science, the Registrar of the University, and the Director of the School. It is a record of the courses taken and the grades obtained in the final examinations.

In order to qualify for the Certificate:

Students in Section A must *take and pass* 6 examinations (5 if they have taken Course 1).

Students in Section B must *take and pass* 5 examinations.

Students in Section C must *take and pass* 5 examinations.

A First Class Certificate is awarded for results averaging not less than 80%.

A Second Class Certificate is awarded for results averaging between 79% and 65%.

A Third Class Certificate is awarded for results averaging between 64% and 50%.

STATEMENTS OF EXAMINATION RESULTS

Students failing to qualify for a Certificate (either because they took less than the prescribed number of examinations, or because they failed in one or more examination) receive a STATEMENT OF EXAMINATION RESULTS. This is a document signed by the Director of the School which lists the examinations passed by a student. Failures are not listed.

ACADEMIC CREDITS

Credits may be transferred from the French Summer School to other institutions, usually on the basis of one semester hour for each course taken.

Application for transfer of credits should be addressed to the Registrar of the University, who will forward an official transcript of French Summer School grades on payment of a fee of $1.00. Students who intend to apply such credits towards a degree are recommended to obtain the consent of their own institution to the transfer of French Summer School credits before joining the School.

ACADEMIC CREDIT FOR McGILL STUDENTS

McGill students may, in certain circumstances, and by taking a prescribed set of French Summer School courses, obtain credit for a First or a Second year French course taken during the regular session in the Faculty of Arts and Science.

McGill students wishing to avail themselves of this opportunity *must*, before completing registration, first obtain permission from the Dean of the Faculty.

THE FRENCH HOUSE

The residence used as a French House during the 1957 session of the School will be Douglas Hall (postal address—3851 University St.).

Douglas Hall is a handsome stone residence of modern design, consisting of eight adjoining "houses" opening on a tree-shaded lawn, in the style of an English country house. It is pleasantly cool in the summer and adjoins playing fields and a large public park. It contains among other amenities a stately Tudor dining-hall, a spacious common-room, a library, and games rooms.

Men and women students will be accommodated in different "houses". They will have single study-bedrooms. The latter are grouped in suites of three or five, each suite having its own sitting-room.

There are a few double rooms. These will be allotted last unless specially requested, and no reduction of residence fee will be made to their occupants.

All rooms are completely furnished. Linen, towels, and blankets are provided.

Meals (breakfast, luncheon, and dinner) are served on the cafeteria system every day, including Sunday, and are under the supervision of a qualified dietitian.

All members of the staff are in residence and associate freely with students at meals, in the Common Rooms, and in extra-curricular activities. This constant, helpful, and friendly relationship between students and staff is one of the most valued features of the School and the benefits derived by the students from such informal education cannot be too strongly emphasized.

HEALTH SERVICE

Students in residence in the French House will have the benefit of the University Health Service for counselling and guidance. For emergencies recourse can be had to the Royal Victoria Hospital clinic which

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adjoins Douglas Hall. Referral to a private physician for other treatment will be arranged but the School cannot assume any responsibility for medical treatment.

In case of illness, the student concerned will be required to pay his medical and hospital fees.

CARS

Sufficient parking space will be available on the terrace fronting on Douglas Hall, and resident students will be supplied with parking permits as necessary.

ARRANGEMENTS FOR STUDY AND RECREATION

Regular lecture classes are held in the Arts Building, in the centre of the University campus.

The mornings are devoted to lectures from 9 A.M. to 1 P.M. *Students are required to attend all the lectures for which they have registered.*

The afternoons are free for private study and recreation. However, students *should* attend:

The *French Song Groups*, directed by Mr. Gabriel Charpentier, which will meet every week day in the Common Room at 2 P.M.

Monday and Wednesday meetings will be exclusively for Section A students.

Tuesday and *Thursday* meetings will be for Section B and Section C students only.

Some afternoons will be set apart for conducted visits through the French district of Montreal, the French-Canadian Université de Montréal, and points of interest in and out of the city.

During the evenings there will be:

EACH WEEK: A special lecture
A concert of recorded French music
A showing of French movies

DURING THE SESSION: A students' concert
A treasure-hunt
Two or three evenings of French dramatics

In the reading room, students find daily and weekly newspapers from French-speaking countries.

A TV set in the common room enables them to watch the excellent programmes from the French Television Network in Montreal.

The "Festival de Montréal" begins during the session. Every summer French plays are performed by the best professional Montreal troupes.

In addition, the City of Montreal offers a number of popular attractions, such as the weekly open-air "Concerts Symphoniques" given in the evening on Mount Royal and scores of French restaurants and motion-picture theatres.

For those with a taste for athletics, the University tennis courts and swimming-pool are available on payment of a small fee. (*Note: Whites are required for tennis and no woollen bathing-suits are allowed in the pool.*) The Laurentian Mountains, one of Canada's noted summer play-grounds, are within easy reach by car or train for students who would like to spend short week-ends there.

Those who wish to attend religious services with a French congregation will find both Protestant and Roman Catholic churches within easy walking distance of Douglas Hall.

USE OF FRENCH

Since the French Summer School aims at creating and preserving the spirit and the atmosphere of a French University best suited to needs of originally English-speaking students, it is natural that French should be the language spoken, to the exclusion of all others.

THE EXCLUSIVE USE OF FRENCH *AT ALL TIMES*, IN AND OUT OF CLASS, AND ESPECIALLY IN THE FRENCH HOUSE, IS THEREFORE *ABSOLUTELY COMPULSORY*.

On registering, students will sign a form pledging them to the *NO ENGLISH RULE* for the duration of the session. This rule will come into force immediately after the conclusion of the Opening Ceremony, on 27 June. The rule means that students are in honour bound to speak French when conversing among themselves as well as when talking to the staff. It should not even be necessary to depart from the rule when visiting or shopping in the city of Montreal where French is universally spoken.

The rule may be relaxed in special cases only (illness, visits from and to relatives, or when matters of special importance must be attended to urgently).

The co-operation of all students is expected in maintaining the *NO ENGLISH RULE*. Those who may be doubtful about their ability to keep it strictly should remember that the effort required of them will be less and less as the session progresses. They should bring with them such helps as vocabularies, conversation books, and pocket dictionaries, which will be very useful for the first few days. However, they will soon find that they can dispense with them. As their command of spoken French improves rapidly, they will experience a feeling of achievement, and the greater their enthusiastic adherence to the rule, the better and quicker their progress.

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Telephone calls involving the use of English are forbidden in the residence, nor can friends unable to speak French be entertained in the French House.

Students should, in their own interest, refrain from reading English newspapers (seven French newspapers are published in Montreal and French newspapers are received by air-mail from France every day), and listening to radio broadcasts in English (there are five French-speaking radio stations and one French-speaking TV station in Montreal).

Any student who persists in breaking the *NO ENGLISH RULE* will be brought before the Dean of the Faculty of Arts and Science, who may dismiss him from the School.

REDUCED RAILWAY FARES

Arrangements have been made whereby students may obtain reduced fares from all points in Canada. Students wishing to avail themselves of this reduction should buy a single ticket and obtain at the same time a "Standard Certificate". This certificate must then be signed by the Director of the School. On presenting it at the railway ticket office, students may obtain a return coupon at the reduced fare (one-third of the cost of a one-way ticket).

U.S. students from the Great Lakes area will find it advantageous to break their journey at the Canadian border so that they may avail themselves of the reduced fare for the remainder of their passage to and from Montreal.

BAGGAGE

The following is an extract from a memorandum (Series D, No. 12, Supplement No. 1, 15th January, 1936) of the Department of National Revenue, Customs Division:

> "Radios, phonographs, musical instruments and other effects for personal and sporting use, not ordinarily entitled to entry free of duty as travellers' baggage, may be admitted without payment of duty and without deposit provided they are reported to the Customs Office and provided that these articles are imported for the use of the students themselves and will be exported under Customs supervision immediately after the closing of the School."

IMMIGRATION REQUIREMENTS

Students who are not residents of Canada should bring with them for presentation to Canadian Immigration officers the letter informing them that they have been admitted to the School for the 1957 session.

United States citizens should carry some documents of identification such as old passports, birth or baptismal certificates, tax bills, and similar papers in order to facilitate their return to their country.

Students who are citizens of the United States by naturalization should carry their naturalization certificates, and those who have not acquired such status should present evidence that they are legally in the United States and that they will be allowed to re-enter that country after their temporary stay in Canada.

BANKING ARRANGEMENTS

It is recommended to out-of-town students that they bring letters of credit or use traveller's cheques, rather than draw ordinary cheques on their home banks.

COURSES OF INSTRUCTION

SECTION A

Students wishing to qualify for the Certificate must take not less than *six* courses. Course 1, being a six hour course, will be counted as equivalent to two normal courses. Students taking Course 1 need include in their curriculum 4 other courses only.

1. LIVING FRENCH : A NEW ORAL-AURAL APPROACH TO SPOKEN FRENCH

This basic course aims at:

(*a*) developing the student's familiarity with the sounds of the French spoken in everyday life by well-educated French people;

(*b*) building up a comprehensive, organized knowledge of the vocabulary which recurs most frequently in polite conversation;

(*c*) increasing the student's general fluency in speaking French by individual and group practice under experienced specialists.

All Section A students who, at the time of registration, experience difficulty in understanding French when spoken slowly are recommended to take this course. The size of the classes will be strictly limited and students will be grouped according to their proficiency.

Recorded material for this course will be available at the Practice Laboratory.

Mon., Tues., Wed.,
Thurs., Fri., Sat. at 9.

Mlle La Mothe
M. Rabotin
Mlle Reverchon
M. Romer

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2. FUNCTIONAL GRAMMAR

This course, which will consist of oral and written work, will include:

(*a*) a revision of the rules of French grammar which the average student generally finds somewhat difficult to master (e.g. use of tenses, especially infinitive and subjunctive, relative pronouns, past participles, etc.);

(*b*) written translation work from English into French for the purpose of general grammar review.

Mon., Wed., Fri. at 10.

Mlle FERAULT
M. JACKSON
Mlle LA MOTHE

3. EVERYDAY WORDS AND PHRASES

A systematic study of vocabulary selected for its practical value. Special emphasis will be laid on the fitting of new phrases into the pattern of conversation.

Mimeographed material will be supplied and phonograph records for this course will be available at the Practice Laboratory.

Tues., Thurs., Sat. at 10.

Mlle CHAMPIGNEUL
Mme FEARN
M. RABOTIN

4. THE STUDY AND PRACTICE OF FRENCH SPEECH HABITS

This course is designed to develop the student's familiarity with French speech habits. Its aims are:

(1) To emphasize the wide differences between spoken and written French and, by intensive drill, to accustom the student's ear to French sounds and rhythms, as well as to help him recognize words within the context of the spoken sentence—in other words to *hear* French;

(2) to improve the student's French pronunciation by individual and group practice of vowels, consonants, rhythms, and intonation. Exercises will include the learning and repetition of carefully graded passages of conversational and literary French.

Phonograph records for this course will be available at the Practice Laboratory.

Tues., Thurs., Sat. at 11.

Mme DARIOSECQ
Mlle FERAULT
M. JACKSON
M. PENOT

5. MODERN FRENCH PROSE

The purpose of this course is to improve a student's ability to read quickly, yet accurately, modern French prose of quality. The course is recommended to students who will require later on a good reading knowledge of French.

Mon., Wed., Fri. at 11. — Mlle CHAMPIGNEUL, M. JACKSON, M. RAFFESTIN

6. LANDMARKS IN 19TH CENTURY FRENCH LITERATURE

This course is specially designed for college students. It will be given in lecture form and will require a somewhat higher standard of aural comprehension than the courses listed above. It will *not* be a general survey course, but will be a vivid presentation of the outstanding literary figures of the period.

Mimeographed material will be supplied for this course.

Tues., Thurs., Sat. at 12. — Mme DARIOSECQ

7. FRENCH SONGS

Songs will be studied to find out what they mean, how they came into being, and what associations they have acquired. The evolution of a given song will be traced from its medieval beginnings to its present vogue in the "caves" near Saint-Germain-des-Prés. We shall emphasize the transformations of language that appear in songs. The students will be both audience and artists as they will take part in the singing of the songs studied in the course.

Mon., Wed., Fri. at 12.15. — M. CHARPENTIER

(Douglas Hall Common Room)

SECTION B

Students wishing to qualify for the Certificate must take not less than *five* courses and include in their curriculum *three* courses in Language (one of which must be Course 10 or Course 11 or Course 12) and *two* courses in Literature and Civilization. In certain circumstances, this proportion may be altered with the Director's permission.

Language Courses

Courses will be given at different hours to allow a greater number of students to fit them into their individual time-tables.

10. COMPOSITION AND TRANSLATION

The purpose of this course is to review grammar whenever the opportunity occurs and to develop accuracy in the use of vocabulary and correctness in syntax by means of graded exercises, short compositions, and translations into French.

Tues., Thurs., Sat. at 9.	M. Jackson
at 10.	Mlle La Mothe
at 11.	M. Rabotin

11. FREE COMPOSITION

The aim of this course is to develop fluency in written French by practising the forms of writing which students are most likely to need: letters, summaries, reports, essays, etc.

Tues., Thurs., Sat. at 9.	M. Penot
at 10.	M. Raffestin

12. ORAL PRACTICE IN SELF-EXPRESSION

This course will consist of prepared discussions on assigned subjects with special emphasis on correct sentence building and on accuracy in the use of an idiomatic vocabulary.

Tues., Thurs., Sat. at 9.	Mlle Ferault
at 10.	Mlle Marmin
at 11.	M. Raffestin

13. FRENCH PHONETICS

An elementary but attractive study of French sounds and of their rendering in the symbols of the International Phonetic Alphabet. The course will include periods of intensive practice in the afternoons when

correction of individual speech defects will be given special attention. Students will have at their disposal up-to-date phonetic equipment and recording machines of various types.

Mimeographed material will be supplied and phonograph records for this course will be available at the Practice Laboratory.

Mon., Wed., Fri. at 9. Mme DARIOSECQ
at 10. Mlle FERAULT
at 11. M. PENOT

14. DICTION

This popular course aims at a better appreciation of the aesthetic qualities of French used orally in prose and in verse. It will feature a number of special exercises designed to correct defects in pronunciation and intonation.

Mimeographed material will be supplied and phonograph records for this course will be available at the Practice Laboratory.

Mon., Wed., Fri. at 10. Mme FEARN
at 11. Mlle MARMIN

15. EXPLICATION DE TEXTES

This course is an introduction to the analytic French approach to the detailed study of literature. The method will be demonstrated and practised on selected passages of high literary and artistic quality. As the course bridges the gap between language and literature courses, College students majoring in French will find it both helpful and stimulating.

Mon., Wed., Fri. at 9. Mme FURNESS
at 10.

LITERATURE AND CIVILIZATION COURSES

20. LA FONTAINE

Everyone has had the opportunity of reading some of the best-known fables and now feels that they have been but the "preview" to a wonderful production: "la comédie aux cent actes divers" written by one of our most subtle observers of life. By thorough explanation of many outstanding fables, you will be invited to a full appreciation of the depth and artistry of the *Fables* as well as to a better acquaintance with La Fontaine, the man and the artist.

Book—La Fontaine: *Fables* (Collection du Flambeau, Hachette)

Tues., Thurs., Sat. at 11. Mlle CHAMPIGNEUL

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21. THE FRENCH COMEDY AS ILLUSTRATED BY MOLIÈRE, BEAUMARCHAIS, AND MUSSET

Six of the most famous comedies of the French Literature will be studied in this course. Two selections from each of the 17th, 18th and 19th centuries have been chosen to illustrate not only the varied mental climate of each period but the continuity of the comic vein in French Literature:

On the programme:

Molière: *L'Avare, Le Misanthrope*
Beaumarchais: *Le Barbier de Séville, le Mariage de Figaro*
Musset: *Il ne faut jurer de rien, On ne badine pas avec l'amour*

In addition to the 6 plays selected for intensive study, readings of other works will be assigned.

Tues., Thurs., Sat. at 10. Mme FURNESS

22. THE REALIST AND NATURALIST NOVEL (1850-1895)

The aim of this course is to make the student familiar with the leaders of the Realist and Naturalist schools, who have played a major part in making the novel the all-embracing literary genre which it is to-day.

Readings will include extracts from the works of G. Flaubert, E. and J. de Goncourt, G. de Maupassant, E. Zola and his Group.

Mon., Wed., Fri., at 9. Mme DARIOSECQ

23. FIVE CONTEMPORARY FRENCH NOVELS

In this course, one novel from each of five outstanding contemporary writers will be studied. The authors selected cover a wide range of opinion on social, political, moral, and aesthetic problems.

The following novels will be read:

Alain-Fournier: *Le Grand Meaulnes*
André Gide: *Les Faux-Monnayeurs*
André Malraux: *La Condition humaine*
Albert Camus: *L'Etranger*
Vercors: *Les Animaux dénaturés*

Mon., Wed., Fri. at 10 Mlle MARMIN

24. FRENCH MUSIC OF THE MIDDLE AGES AND THE RENAISSANCE

This story begins with the Gregorian chant in the abbeys and cathedrals. Then come Pérotin le Grand, Guillaume de Machault, Guillaume Dufay, Jean Okeghem, Josquin des Prés, Roland de Lassus, Claude Lejeune, with all their discoveries in vocal and instrumental music.

This course will study both the actual works and their influence on the music of other countries and of our time.

The course will be illustrated with recorded material.

Tues., Thurs., Sat. at 12:15. M. CHARPENTIER
(Douglas Hall Common Room)

SECTION C

Students wishing to qualify for the Certificate must take not less than *five* courses.

M.A. students must take certain courses listed on page 4036.

LANGUAGE COURSES

30. FRENCH STYLISTICS

While stylistics is a relatively new province of the vast field of linguistics, experience has shown that students of graduate calibre desirous of writing French with better than textbook accuracy derive great benefit from a serious study of it.

The complexity of the subject would however make a survey of it comparatively useless. Details must be gone into and, for that reason, the substance of the course has been evenly divided between 30(a) and 30(b), both of them full courses which will be offered in alternate years.

30(a) which deals with homonymy, synonymy, comparisons, images, the uses of various figures of speech, and the syntax of informal French, will be given in 1957.

30(b)—to be given in 1958—will offer a review of the "levels of speech" and through a close study of selected modern prose passages, analyse the means devised by creative writers to clothe their ideas and feelings in a truly artistic and literary garb.

This is a compulsory course for M.A. students, and those who have not taken *Course 30* in a previous year will be required to take both *30(a)* and *30(b)* over two separate years.

Tues., Thurs., Sat. at 11. Mme FEARN

31. ADVANCED COMPOSITION

An intensive seminar in translation from English into French. The passages translated will be taken from modern English and American writers. Written work will be assigned for each class and will be individually corrected. The size of the class will be limited to a small group.

Tues., Thurs., Sat. at 10. Mlle REVERCHON

32. ADVANCED PHONETICS

This course is open to students who have passed course 13 or its equivalent.

Review of the formation of French sounds and the laws governing their occurrence. Dynamics of speech (vocal harmony, assimilation, rhythms, and patterns of intonation).

This course will include the study of texts ranging from everyday familiar French to academic discourse and poetry, in order to bring out the phonetic features of the different levels of speech.

The course is recommended to teachers of French.

Phonograph records for this course will be available at the Practice Laboratory.

Mon., Wed., Fri. at 9. M. RIGAULT

33. PUBLIC SPEAKING

This course attempts the final step to functional proficiency in oral French. It is designed to give students confidence in their ability to mix with French-speaking people in every walk of life. They will practise expressing their own views to individuals and groups by means of debates and panel-discussions covering a wide variety of situations.

Mon., Wed., Fri. at 12. Mlle CHAMPIGNEUL

COURSES IN LITERATURE AND CULTURE

40. LA POÉSIE FRANÇAISE AU XVIe SIÈCLE

Ce cours étudiera l'évolution de la poésie française au XVIe siècle, du poète de cour Clément Marot au poète visionnaire et mystique Agrippa d'Aubigné. Une attention particulière sera apportée à l'étude de Ronsard, de du Bellay et de leurs compagnons de la Pléiade.

Livres: *Anthologie des poètes français, XVe et XVIe siècles* (Larousse)
Marot: *Pages choisies* (Classiques Hatier)
Ronsard: *Poésies choisies* (Classiques Larousse)
du Bellay: *Oeuvres choisies* (Classiques Larousse)
d'Aubigné: *Les Tragiques* (Classiques Larousse)

Tues., Thurs., Sat. at 12 — Mlle MARMIN

41. LA COMÉDIE AU XVIIIe SIÈCLE

Au XVIIe siècle, Molière avait porté la comédie classique à son point de perfection. Il eut au siècle suivant quelques continuateurs; mais très tôt ses successeurs durent se livrer à des créations originales pour renouveler le genre comique et satisfaire aux goûts de l'époque. Ainsi naquirent la comédie d'analyse de Marivaux, le drame bourgeois de Sedaine et la comédie sociale et satirique de Beaumarchais qui feront l'objet de ce cours.

Livres: Lesage: *Turcaret* (Classiques Larousse)
Regnard: *Le Légataire universel* (Classiques Larousse)
Marivaux: *Théâtre* (Classiques Garnier)
Sedaine: *Le Philosophe sans le savoir* (Classiques Larousse)
Beaumarchais: *Théâtre* (Collection du Flambeau, Hachette)

Tues., Thurs., Sat. at 9. — Mme FURNESS

42. LES POÈTES ROMANTIQUES

Au début du XIXe siècle, après un âge de pensée et de raison abstraites, de grands poètes apportèrent au public fatigué des excès de la Révolution une poésie lyrique où dominèrent le sentiment et l'imagination. Ils exprimèrent longuement leurs enthousiasmes et leurs sentiments personnels. Rompant avec les règles strictes de la tradition classique, ils réclamèrent une plus grande liberté dans le choix des sujets et des moyens d'expression.

Nous nous proposons d'étudier les plus grands et les plus représentatifs d'entre eux: Lamartine, Hugo, Vigny et Musset.

Livres: *Poésies* de Lamartine, Hugo, Vigny, Musset, publiées dans la Collection du Flambeau, Hachette.

Mon., Wed., Fri. at 10. — Mlle REVERCHON

43. MARCEL PROUST

Aperçu général du cours: Dessin général de l'oeuvre de Marcel Proust. Le rôle de l'inconscient; la mémoire inconsciente. Proust peintre de la société. Le comique de Proust. Proust peintre de l'homme, dans la tradition des moralistes classiques. La psychologie en profondeur, la psychologie

dans le temps. Proust observateur du langage. Proust peintre de l'amour. La "vraie vie"; le rôle de l'art; les grands créateurs: Bergotte, Vinteuil, Elstir. Le sens de l'oeuvre proustienne.

Au programme: *A la Recherche du Temps Perdu* (N.R.F. Gallimard)

Mon., Wed., Fri. at 11. Mme FEARN

44. LA VIE POLITIQUE FRANÇAISE CONTEMPORAINE

Ce cours présentera les éléments qui composent la vie politique de la France actuelle et étudiera en particulier les points suivants: Les Institutions constitutionnelles de la France. Les rapports du gouvernement et du parlement. Les partis politiques; leurs origines, leur évolution, leur doctrine; les notions de "droite" et de "gauche" en France. Les élections. La vie syndicale. L'opinion publique française; la presse. Les grands problèmes de politique intérieure de la France en 1957; comment se posent-ils? les différentes solutions possibles.

Mon., Wed., Fri. at 12. M. RAFFESTIN

SPECIALIZED COURSES

50. FRENCH IN DIPLOMACY AND PROTOCOL TO-DAY

This is a specialized course, open to students who are qualified to enter the Intermediate or Advanced Section, and who are interested in diplomatic or international careers.

In order to improve their knowledge of French, students are advised to take this course in conjunction with at least one other course from among the following:

in Section B, (10) Composition and Translation or (11) Free Composition;

in Section C, (30) Stylistics or (31) Advanced Composition.

Students may include this course in the five-course programme required to qualify for the French Summer School Certificate.

In any case, students who take and pass the final examination in FRENCH DIPLOMACY AND PROTOCOL TO-DAY will receive a statement.

The course will deal with the following: categories of diplomatic correspondence and communications: official, semi-official, and personal; form, style, and substance; technical terms and diplomatic usage; forms of address, rank, and official precedence; negotiations and forms of agreements; comparative analysis of diplomatic documents, etc.

The course will be illustrated with practical and historical examples, and will include oral exercices and written assignments. The basic material and documentation have been especially obtained from the Foreign Affairs Departments of Belgium, Canada, France, and Switzerland.

Students intending to take this course are advised to register in advance, as the size of the class is limited to a maximum of 20.

Mon., Wed., Fri. at 10. M. ROMER

51. METHODS OF TEACHING SPOKEN FRENCH

This course will analyze and discuss the current methods of modern language teaching on all levels. Emphasis will be laid on the practical approach to teaching spoken French, and the use of audio-visual aids. The following points will be stressed:

Spoken French vs. written French. Why should spoken French be taught first? French speech habits. The basic words used in spoken French: "le français élémentaire". What becomes of grammatical rules when applied to spoken French. The structure of spoken French.

Objectives of the language laboratory, for the student and for the teacher. The planning of a language laboratory. The various types of sound equipment used in the language laboratory; how to choose them; how to use them. The audio-visual aids now available (Records, tapes, slides, films). The study and critical evaluation of the aural-oral methods for teaching French. How to integrate language laboratory work into a literature course.

The course is open to students qualified to enter the Intermediate or Advanced Section.

Mon., Wed., Fri. at 10. M. RIGAULT

READINGS IN ADVANCE

Students are strongly advised to do the reading for the literature courses they plan to attend before the School opens. This will give them more time for detailed study during the session, and enable them to keep up with their daily assignments.

TEXTBOOKS

All the textbooks required for individual courses will be found at the McGill University Book Store, 3480 University Street.

Books for readings will be available at the University Library but students will be well advised to purchase at least some of them either before

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they come to the School or at book shops in Montreal where, by special arrangement, stocks of these books will be kept during the session.

Lists of textbooks will be ready by the end of April, and the School Secretary will mail them on request to students accepted at the School.

All students should bring with them the grammars and dictionaries with which they are familiar.

REGULATIONS FOR THE MASTER OF ARTS DEGREE

1. All work carried on towards an M.A. degree in the French Summer School is under the control and supervision of the Department of French in the Faculty of Graduate Studies of the University.

2. REQUIREMENTS FOR THE MASTER'S DEGREE

   (*a*) The student must hold the degree of B.A. from McGill University, or from another institution of recognized standing, with at least second class Honours in French, or the equivalent of second class Honours in French as granted by McGill University—which must include the ability to speak French with some fluency and a sound knowledge of French literature from 1600 to 1950.

   (*b*) A student, qualified as in 2(*a*), must complete four sessions in the Advanced Section of the French Summer School with at least second class standing in the final examinations of each session.

   (*c*) The student must prepare and present a thesis, written in French, which must be in some measure a contribution to knowledge. Its preparation is carried out under the direction of the French Department.

3. Students applying for admission to the Advanced Section of the Summer School, with the intention of proceeding towards the M.A. degree, should, as soon as possible, have a transcript of their academic record sent for appraisal to the Director of the School.

   Students whose records are considered to be the equivalent of the B.A. degree with at least second class Honours in French as granted by McGill University will be notified of their eligibility for future admission to the Faculty of Graduate Studies of the University. At the end of their second session they will be required to register in that Faculty as candidates for the M.A. degree, provided that they have completed the course requirements for the first two sessions.

Students who hold a B.A. degree but whose records are not considered to be the equivalent of the McGill B.A. with at least second class Honours in French may be allowed to make up the deficiency by taking more courses during their third and fourth summer sessions.

M.A. students will not be required to re-register in the Graduate Faculty at the end of the third Summer Session, but will do so at the end of the fourth.

4. In the case of students of Honours standing, the first summer session consists of five courses, the second of four courses, the third of three courses, and the fourth of two courses, each course consisting of three lectures per week. The decreasing number of courses through the four sessions enables the student to devote more time to the preparation of his thesis, which must begin in the third session. Each student works under the guidance of a director of research who is a member of the Summer School Staff. The only listed course which may be taken for credit in more than one session is No. 31, Advanced Composition (see below).

   Students may be required to take certain courses which are changed from year to year, and in any case:

   30—FRENCH STYLISTICS. Students are advised to take 30(a) during their first or second session, and 30(b) during their third or fourth.

   31—ADVANCED COMPOSITION. A minimum mark of 65% must be obtained in the final examination of this course, irrespective of the final average for the set of courses taken during the session. The course must be repeated until this requirement has been met. As its material is varied each year, it can be taken a second summer for credit. If taken more than twice, it must then be carried as an extra course.

5. With the approval of the Graduate Faculty, one of the summer sessions, except the first, may be replaced by equivalent work in France or at another French Summer School.

FEES FOR M.A. STUDENTS

1. *School Fees.*

   M.A. candidates pay the full sessional fee of $295 (tuition, room, and board) or $135 (tuition alone) for each summer session during which they take courses.

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M.A. candidates who have completed the courses required for the degree but have not completed the thesis, and are attending colloquia, will be charged at the rate for a single regular course.

2. *University Fees.*

The University fee for the M.A. degree is $400. A credit of $97.50 is allowed for each session a student spends in Section C of the French Summer School. Thus a student who has attended four sessions will be required to pay only $10.00 when he registers at the office of the Dean of the Faculty of Graduate Studies at the end of his fourth session. If the presentation of the thesis is postponed beyond the May following this registration, the student will pay an additional registration fee of $10.00 at the beginning of the session in which the thesis is to be presented. Students who obtain their M.A. degree via the French Summer School are excused the "in absentia" fee.

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TIMETABLE

Time	SECTION A		SECTION B		SECTION C	
	Monday-Wednesday Friday	Tuesday-Thursday Saturday	Monday-Wednesday Friday	Tuesday-Thursday Saturday	Monday-Wednesday Friday	Tuesday-Thursday Saturday
9	1. Living French	1. Living French	13(a). Phonetics 15(a). Explication de textes 22. The Realist and Naturalist Novel (1850–1895)	10(a). Composition and Translation 11(a). Free Composition 12(a). Oral practice	32. Advanced Phonetics	41. La Comédie au XVIIIe siècle
10	2. Functional Grammar	3. Everyday Words and Phrases	13(b). Phonetics 14(a). Diction 15(b). Explication de textes 23. Contemporary Novels	10(b). Composition and Translation 11(b). Free Composition 12(b). Oral practice 21. The French Comedy	42. Les poètes romantiques	31. Advanced Composition
11	5. Modern French Prose	4. French Speech Habits	13(c). Phonetics 14(b). Diction	10(c). Composition and Translation 12(c). Oral practice 20. La Fontaine	43. Marcel Proust	30. Stylistics
12	7. French Songs	6. 19th Century French Literature		24. French music of the Middle Ages and the Renaissance	33. Public Speaking 44. La vie politique française	40. La poésie au XVIe siècle

Course 50—*French in Diplomacy and Protocol To-day* will be given on Monday, Wednesday and Friday at 10.
Course 51—*Methods of teaching spoken French* will be given on Monday, Wednesday and Friday at 10.

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CONVERSATION GROUPS OFTEN PREFER TO MEET ON THE LAWN
(In the background the new University Library)

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EVERYBODY SINGS!
(One of the French song groups in afternoon session.)

Macdonald College

McGill University

Faculty of Agriculture
School of Household Science
1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office, McGill University, Montreal 2, Quebec.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
**Faculty of Graduate Studies and Research*
**Institute of Education*
School of Commerce
Library School
School of Physical Education
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
**Macdonald College* (Faculty of Agriculture, School of Household Science.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instruction. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

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* These Announcements are also available through the Registrar's Office, Macdonald College.

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His Excellency the Right Honourable
Vincent Massey, C.H., Governor General of Canada

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H. G. DION, B.S.A. (Sask.), Ph.D. (Wis.)

Secretary and Assistant Bursar, Macdonald College
J. H. HOLTON, B.Com. (Tor.)

Registrar, Macdonald College
A. B. WALSH, B.Sc. (Agr.)

Librarian
MARGARET C. MACINTOSH, M.A. (Queen's), B.L.S.

Medical Officer
G. L. FORTIER, B.Sc., M.D.,C.M.

Warden of Brittain Hall
D. W. COLE, M.A.

Warden of Stewart Hall
MRS. MARION G. STRANG

Dietitian
MARGARET R. STEWART, B.H.S.

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MACDONALD COLLEGE

(McGill University)

Degrees received from McGill University carry no institutional designation and are placed after those received elsewhere.

FACULTY OF AGRICULTURE

DEAN:—HENRY GEORGE DION, B.S.A (Sask.), Ph.D. (Wis.), *Professor of Soil Chemistry*

PHOEBUS A. ANASTASSIADIS, B.Agr. (Athens), M.Ed. (Rutgers), Ph.D., *Assistant Professor of Agricultural Chemistry*

HENRY R. C. AVISON, M.A., *Associate Professor of English, Chairman of the Department, and Director of the Adult Education Service*

BRUCE E. BAKER, B.Sc. (Bishops), D.Sc. (Laval), *Associate Professor of Agricultural Chemistry*

ANGUS BANTING, B.S.A. (Tor.), *Professor of Agricultural Engineering and Chairman of the Department*

ROBERT S. BIGELOW, B.Sc. (Agr.), Ph.D., *Assistant Professor of Entomology*

A. CLARK BLACKWOOD, B.Sc. (Alta.), M.Sc., Ph.D. (Wis.), *Professor of Agricultural Bacteriology and Chairman of the Department*

JOHN WALLACE BOYES, M.Sc. (Sask.), Ph.D. (Wis.), *Professor of Genetics (Faculty of Arts and Science)*

G. ERIC BRADFORD, M.Sc., Ph.D. (Wis.), B.Sc. (Agr.), *Assistant Professor of Animal Husbandry and Genetics*

ROBERT I. BRAWN, B.S. (Penn State), Ph.D. (Wis.), *Associate Professor of Agronomy and Genetics*

W. H. BRITTAIN, Ph.D. (Cornell), D.Sc. (U.B.C.), B.S.A., LL.D., F.A.I.C., F.R.S.C., *Curator of the Morgan Arboretum (Post-retirement)*

JOHN STEPHEN BUBAR, M.Sc. (Penn. State), B.Sc.(Agr.), *Lecturer in Agronomy*

ERIC O. CALLEN, B.Sc., Ph.D. (Edin.), F.L.S. *Assistant Professor of Plant Pathology*

THOMAS W. M. CAMERON, T.D., M.A. (Edin.), B.Sc. (Vet. Sci.) (Edin.), D.Sc. (Edin.), Ph.D. (Lond.), M.R.C.V.S., F.R.S.C., *Professor of Parasitology, Director of the Institute of Parasitology, and Chairman of the Department of Parasitology*

DESMOND W. COLE, M.A. (U.B.C.), *Assistant Professor of English and Warden of Brittain Hall*

NICHOLAS COLOTELO, B.S.A. (Tor.), Ph.D. (Sask.), *Research Associate in Plant Pathology*

R. H. COMMON, B.Sc., M.Agr. (Belfast), Ph.D., D.Sc. (London), D.Sc. (Belfast), F.R.I.C., F.C.I.C., F.A.I.C., *Professor of Agricultural Chemistry and Chairman of the Department*

J. H. COOPER, B.Sc. (Agr.), *Associate Professor of Agricultural Engineering*

JOHN G. COULSON, M.A. (Queen's), D.Sc. (Montréal), F.A.I.C., *Professor of Plant Pathology and Chairman of the Department*

EARLE W. CRAMPTON, M.S. (Iowa), Ph.D. (Cornell), F.R.S.C., F.C.I.C., F.A.I.C., *Professor of Nutrition and Chairman of the Department*

D. G. DALE, D.V.M. (Tor.), *Assistant Professor of Animal Pathology and Chairman of the Department*

JEAN DAVID, L.S.A. (Montréal), Ph.D. (California), *Assistant Professor of Horticulture*

WALTER A. DELONG, B.S.A. (Tor.), Ph.D. (Minnesota), M.Sc., F.A.I.C., *Professor of Agricultural Chemistry*

MARGARET H. DUBREUIL (MRS.), M.A. (Aberdeen), *Sessional Lecturer in English*

E. MELVILLE DUPORTE, Ph.D., *Professor of Entomology (Post-retirement)*

RALPH HOWARD ESTEY, M.S. (Maine), B.Sc. (Agr.), Ph.D., *Assistant Professor of Plant Pathology*

D. FAIRBAIRN, B.A. (Queen's), Ph.D. (Rochester), *Associate Professor of Parasitology*

FLORENCE A. FARMER, Ph.D., *Assistant Professor of Nutrition*

DOUGLAS M. FRASER, B.Sc. (Dal.), *Lecturer in Agricultural Physics*

WILLIAM FREDERICK GRANT, M.A. (McMaster), Ph.D. (Univ. of Virginia), *Assistant Professor of Genetics (Faculty of Arts and Science)*

CHARLES WAYNE HALL, M.A. (Bishop's), *Professor of Education (Institute of Education)*

LIONEL H. HAMILTON, M.S. (Wis.), *Associate Professor of Animal Husbandry and Chairman of the Department, Director of Diploma Courses.*

PATRICIA MARIE HARNEY, B.Sc.(Agr.), *Lecturer in Horticulture*

ROBERT P. HARPUR, B.Sc. (N.Z.), M.Sc., Ph.D., *Assistant Professor of Parasitology*

WILLIAM E. HAVILAND, B.A. (McMaster), M.A. (Tor.), A.M., Ph.D. (Harvard), *Associate Professor of Agricultural Economics*

STUART CHRISTOPHER M. HAWKINS, D. de l'U. (Paris), M.A., *Associate Professor of Education (Institute of Education)*

G. O. HENNEBERRY, B.Sc. (Dalhousie), M.Sc., *Lecturer in Agricultural Chemistry*

ARTHUR M. HENRY, B.A. (Lond.), M.A., *Associate Professor of Education (Institute of Education)*

ARCHIBALD R. C. JONES, B.Sc.F. (Tor.), *Lecturer in Woodlot Management*

WINSTON W. KEELER, *Instructor in Agronomy and Field Superintendent*

HAROLD R. KLINCK, B.S.A. (Tor.), M.Sc., Ph.D., *Assistant Professor of Agronomy*

MARSHALL LAIRD, D.Sc. (New Zealand), *Assistant Professor of Parasitology*

LEWIS E. LLOYD, B.Sc. (Agr.), M.Sc., Ph.D., *Associate Professor of Nutrition*

E. A. LODS, D.Sc. (Montréal), M.S.A., F.A.I.C., *Superintendent of the Provincial Seed Farm (Post-retirement)*

ALLAN CLYDE MALLOCH, B.Sc. (Queen's), *Assistant Professor of Agricultural Engineering*

W. A. MAW, M.S.A., F.P.S., *Professor of Poultry Husbandry and Chairman of the Department*

DAVID L. MACFARLANE, M.Sc. (Sask.), Ph.D. (Minnesota), *Professor of Agricultural Economics and Chairman of the Department*

JOHN E. MCFARLANE, M.A. (Sask.), Ph.D. (Ill.), *Assistant Professor of Entomology*

EUGENE MEEROVITCH, B.Sc. (St. Johns, Shanghai), M.Sc., *Lecturer in Parasitology*

FRANK O. MORRISON, B.A., B.Sc. in Agriculture, M.Sc. (Alberta), Ph.D., *Associate Professor of Entomology*

J. E. MOXLEY, B.Sc.(Agr.), *Assistant Professor of Animal Husbandry*

H. R. MURRAY, M.Sc. (Cornell), *Associate Professor of Horticulture and Chairman of the Department*

N. NIKOLAICZUK, M.Sc. (Alta.), Ph.D. (Ohio State), *Associate Professor of Poultry Husbandry*

WILLIAM FRASER OLIVER, B.A. (McMaster), M.A., Ph.D. (Toronto), *Associate Professor of Agricultural Physics*

GILBERT IVAN PAUL, B.Sc. (Alta.), M.Sc., Ph.D. (North Carolina), *Assistant Professor of Genetics (Faculty of Arts and Science)*

RÉAL LUCIEN PELLETIER, L.S.A. (Montréal), Ph.D. (Wis.), M.Sc., *Assistant Professor of Plant Pathology*

BRONYS POVILAITIS, M.Sc., Ph.D., *Research Associate in Genetics (Faculty of Arts and Science)*

ROBERT W. PUGH, *Athletic Director and Assistant Warden of Brittain Hall*

L. C. RAYMOND, M.S. (Wis.), F.A.I.C., *Professor of Agronomy (Post-retirement)*

W. ROWLES, M.Sc., Ph.D., *Professor of Agricultural Physics and Chairman of the Department*

H. A. STEPPLER, B.S.A. (Man.), M.Sc., Ph.D., *Professor of Agronomy and Chairman of the Department*

CHARLES D. TAPER, M.S.A. (U.B.C.), Ph.D. (Man.), *Associate Professor of Horticulture*

R. H. WALLACE, B.Sc. (Dalhousie), Ph.D., *Associate Professor of Agricultural Bacteriology*

JOHN ERNEST MCKIM YOUNG, B.A. (McMaster), B.Ed., M.A. (Sask.), Ph.D. (Tor.), *Associate Professor of Education (Institute of Education)*

SCHOOL OF HOUSEHOLD SCIENCE

The School of Household Science is under the administrative jurisdiction of the Faculty of Agriculture.

DIRECTOR:—HELEN R. NEILSON, M.B.E., M.Sc., *Professor of Home Economics*

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HELEN L. DEVEREAUX, M.A. (Tor.), *Assistant Professor of Home Economics*

F. ISABEL HONEY, M.A. (Tor.), *Associate Professor of Home Economics*

A. ELIZABETH JAQUES, *Lecturer in Education (Institute of Education)*

MARJORIE M. JENKINS, B.Sc. (H.Ec.) (Alta.), M.Sc., *Assistant Professor of Home Economics*

KATHLEEN S. MCCORMICK, B.A. (Tor.), *Lecturer in Home Economics*

GERTRUDE C. S. MACFARLANE (Mrs. D. L.), Mus.Bac. (Tor.), M.Sc. (Kentucky), *Sessional Lecturer in Home Economics*

HELEN GEORGINA MCKIRDY, B.Sc.(H.Ec.), *Lecturer in Home Economics*

DOROTHY A. NICHOL, B.Sc.(Phys.Ed.), *Lecturer in Education (Institute of Education)*

ALICE M. STICKWOOD, B.S., M.A. (Columbia), *Lecturer in Foods and Dietetics*

MARGARET R. STEWART, B.H.S., *Lecturer in Home Economics: Dietitian*

McGILL UNIVERSITY ADULT EDUCATION SERVICE

H. R. C. AVISON, M.A., *Director.*

ARNOLD A. HUGHES, B.Sc.(Agr.), *Agricultural Fieldman.*

ELIZABETH MENNIE, B.A., B.L.S., *Secretary-Librarian.*

HANDICRAFT DEPARTMENT

HELENA NEIJZEN, *Instructor.*

FRANCES WREN, *Instructor.*

McLENNAN TRAVELLING LIBRARY

KATHLEEN CLYNES, *Librarian.*

Many officers of instruction give classes in all divisions of Macdonald College; their names appear under that division in which the major portion of their work is done.

CALENDAR FOR SESSION 1957-58

1957

September 3rd, Tuesday.....Registration, Institute of Education.
September 4th, Wednesday.....Lectures begin, Institute of Education.
September 7th, Saturday.....Registration, Teaching Option, Fourth year B.Sc.(H.Ec.) students.
September 9th, Monday.....Registration, Homemaker students.
September 16th, Monday.....Supplemental examinations begin, B.Sc.(Agr.) and B.Sc.(H.Ec.) courses.
September 17th, Tuesday.....Registration, Second year B.Sc.(H.Ec.) students and B.Sc.(Agr.) students taking Ag. Eng. 439.
September 19th, Thursday.....Registration, First year B.Sc.(Agr.) and B.Sc.(H.Ec.) students.
September 24th, Tuesday.....Registration, other B.Sc.(Agr.), B.Sc.(H.Ec.), Handicrafts and Advanced Diploma Course students.
September 26th, Thursday.....Lectures begin for B.Sc.(Agr.), B.Sc.(H.Ec.), Handicrafts and Advanced Diploma Course students.
October 7th, Monday.....Fall Convocation.
October 14th, Monday.....Thanksgiving Day. No classes.
October 28th, Monday.....Registration, Diploma Course students. Supplemental examinations begin, Diploma Course.
October 29th, Tuesday.....Lectures begin, Diploma Course.
November 5th, Tuesday.....Annual Assembly, 3.45 p.m.
November 11th, Monday.....Autumn term examinations begin, Institute of Education.
November 18th, Monday, to November 22nd, Friday, inc.....First practice teaching period, Institute of Education.
December 2nd, Monday.....Winter term begins, Institute of Education.
December 21st, Saturday.....Last day of lectures before Christmas, all schools.

1958

January 6th, Monday.....Lectures resumed, Institute of Education. First term examinations begin, Agriculture and Household Science.

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January 13th, Monday.....Second term begins, Agriculture and Household Science.

January 13th, Monday, to January 17th, Friday, inc......Second practice teaching period, Institute of Education.

February 10th, Monday.....Macdonald College Founder's Day. No afternoon classes. (*Sir William C. Macdonald, born February 10th, 1831, died June 9th, 1917.*)

February 18th, Tuesday.....Macdonald Royal. No classes.

March 1st, Saturday.....Winter term ends, Institute of Education.

March 3rd, Monday, to March 14th, Friday, inc......Third practice teaching period, Institute of Education.

March 15th, Saturday.....Last day of lectures, Diploma Course.

March 17th, Monday.....Spring term begins, Institute of Education.

March 18th, Tuesday.....Final examinations begin, Diploma Course. Supplemental examinations begin, B.Sc. (Agr.) and B.Sc.(H.Ec.) courses.

March 26th, Wednesday.....Graduation Exercises, Diploma Course.

April 4th, Friday, to April 7th, Monday, inc......Easter vacation. (To April 13th, Institute of Education and Homemaker Course.)

April 19th, Saturday.....Last day of lectures, B.Sc.(Agr.) and B.Sc. (H.Ec.) courses.

April 20th, Sunday.....Baccalaureate Service, 3.00 p.m.

April 23rd, Wednesday.....Final examinations begin, B.Sc.(Agr.) and B.Sc.(H.Ec.) courses.

May 3rd, Saturday.....Session ends for B.Sc.(Agr.) and B.Sc.(H.Ec.) students.

May 14th, Wednesday.....Examinations begin, Homemaker Course.

May 17th, Saturday.....Last day of lectures, Institute of Education.

May 21st, Wednesday.....Final examinations begin, Institute of Education.

May 28th, Wednesday.....Convocation.

June 1st, Sunday.....Divine Service, Institute of Education, School of Household Science, Handicrafts students.

June 5th, Thursday.....Graduation Exercises, Institute of Education, School of Household Science, Handicrafts students.

July 30th, Tuesday.....Farm Day. English programme.

July 31st, Wednesday.....Farm Day. French programme.

Macdonald College

Macdonald College, which was founded and endowed by the late Sir William C. Macdonald, is incorporated with McGill University, and is situated twenty miles west of Montreal, at Ste. Anne de Bellevue, Que. It is composed of the Faculty of Agriculture, which includes the School of Household Science, and of the School for Teachers for the Protestant schools of the Province of Quebec.

FACULTY OF AGRICULTURE

The work of the agricultural departments of the College falls into three main divisions: teaching, research, and extension. Teaching and research form the major part of their work. Extension service is undertaken by departments as the need or opportunity may arise.

Information on extension work under the McGill Adult Education Service will be found on page 4518.

SCHOOL OF HOUSEHOLD SCIENCE

The School of Household Science is an integral part of the Faculty of Agriculture. The main function of the School is teaching, both in relation to the home and for professional service in institutions.

SCHOOL FOR TEACHERS

The School for Teachers is a School of McGill University, controlled by a committee established under an agreement with the Government of the Province of Quebec. The School is under the jurisdiction of the Institute of Education and the Faculty of Arts and Science, and offers diploma courses for kindergarten, elementary, intermediate and High School teachers. Courses leading to the Bachelor of Education degree are also offered through the Institute. Information on the School for Teachers is included in the announcement of the Institute of Education, issued separately.

THE INSTITUTE OF PARASITOLOGY

This Institute, located at Macdonald College. is governed by a joint committee of the National Research Council and McGill University, and has, as its main functions, the prosecution of research on animal parasites and the instruction of graduate students

ASSOCIATED COLLEGES

By special agreement, Prince of Wales College, Charlottetown, P.E.I. and the Nova Scotia Agricultural College, Truro, N.S., have arranged to provide their students with a course of study substantially equivalent to the first two years in Agriculture at Macdonald College. Students who have satisfactorily completed such a course of study and are specifically recommended by the authorities of their college are permitted to enter the third year at Macdonald College.

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By special arrangement with the Ontario Veterinary College, students who have successfully completed the first two years of the B.Sc.(Agr.) course at Macdonald College will be admitted to the second year at the Ontario Veterinary College, Guelph, Ont.

GENERAL INFORMATION

Ste. Anne de Bellevue, Que., is twenty miles west of Montreal, on the main lines of the Canadian National Railway and the Canadian Pacific Railway, and on provincial highways No. 2 and No. 17. The Anglican Church of Canada, the United Church of Canada and the Roman Catholic Church in Canada all have churches in the town. Students of all religious denominations are free to enter Macdonald College. A branch of the Bank of Montreal serves the community.

The College has its own post office and mail should be addressed simply Macdonald College, Que. The address for freight and express parcels, and for telegrams, is Macdonald College, Ste. Anne de Bellevue, Que.

Key telephone numbers are: Switchboard (connecting all departments), Ste. Anne de Bellevue 5335; Brittain Hall, 9082, 9086; Stewart Hall, 9008, 9095; Main Building Dormitory, 9003; Harrison House, 4407.

FACILITIES

Sir William Macdonald planned so well for future needs that the facilities of Macdonald College for instruction in Agriculture, Home Economics and Teaching are still provided almost entirely in the buildings constructed in 1905. The picturesque brick buildings and red-tile roofs of the Chemistry, Biology, Agriculture and Main Buildings, together with Stewart and Brittain Halls (residences for women and men respectively), and the well laid out grounds on the shore of Lake St. Louis, combine to provide a campus which is attractive and functional.

Laboratory and lecture rooms are exceptionally well supplied with modern and efficient teaching facilities, while the reference section of the Library and the research laboratories associated with the various science departments are well equipped to permit the vigorous investigation of problems connected with postgraduate studies.

The land associated with the College consists of approximately 1600 acres, at the western end of the Island of Montreal, and is largely in the Parish of Ste. Anne du Bout de l'Ile, Jacques Cartier County. The campus proper consists of about 200 acres south of the Trans Island Boulevard,

and contains the Orchard, Horticulture plots and the Poultry ranges. The Stock Farm has good examples of Holstein, Ayrshire and Aberdeen Angus cattle, Cheviot sheep, and Yorkshire hogs. The Agronomy Farm includes the land devoted to the development of new varieties of crops and comparative testing of new varieties and management practices. The College farm represents a wide variety of the soils of the Ottawa St. Lawrence Valley Lowland, with podsols, brown forest and dark-grey gleizolic (poorly drained) soils, including the Ste. Amable, St. Bernard, Rideau and Ste. Rosalie series.

The Morgan Arboretum established in 1947, has 700 acres of woodland devoted to the study of woodlot management and the place of the woodlot in the Eastern Canadian farm economy. About 100 acres have been planted in reforestation projects. In addition, the Arboretum, in spite of its short history, has Canada's best collection of examples of all Canadian and many foreign species of trees and shrubs of interest from the point of view of pulpwood, timber and landscaping.

THE MACDONALD COLLEGE LIBRARY

The library and reading room are centrally located in the Main Building, occupying the ground floor of an annex leading off the main hall. Seventy-six readers can be accommodated in the reading room, and in a series of alcoves there are reference works and textbooks on the work of the various departments.

The present stack-room has accommodation for about 25,000 volumes, and the choice of books has been directed towards bringing together the best of modern literature on subjects of the curriculum of the College.

The Walter M. Stewart Collection includes biography, history, travel, science, etc. This collection has been purchased through the generosity of Walter M. Stewart, of Montreal.

MACDONALD COLLEGE EXTENSION SERVICES

Departmental Services: — The services of the various departments of Macdonald College are always available for the advancement of the agricultural and home interests of the Province of Quebec. Personal interviews at the College and correspondence are invited.

Adult Education Service: — The College functions through the Adult Education Service in providing an extension programme primarily for rural residents. The service consists of:

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Information Centre—This library of programme materials, books, pamphlets, films, study outlines, etc., welcomes requests for help and advice from all kinds of community organizations, as well as from individuals.

Handicraft Department offers instruction to regular day students and also conducts evening classes in weaving, leatherwork, and woodwork. Instructors in the department are available for short courses away from the College as time permits.

McLennan Travelling Libraries, McGill University, offer a library service to schools and community organizations. Boxes of fifty books are loaned for four months at a moderate charge. A bookmobile serves communities south of the St. Lawrence River on a monthly schedule.

Macdonald Farm Journal, a monthly publication for English-speaking farmers dealing with matters of agricultural interest in popular articles written by members of Macdonald College staff and other contributors.

Evening Courses in a wide variety of subjects including home and landscaping gardening, public speaking, dressmaking, music, etc., are offered to adult citizens within travelling distance of Macdonald College during the fall and winter term.

The College also co-operates with the Quebec Council of Community Programmes in supervising and assisting adult night schools in a number of English-speaking centres of the province. Courses are offered in a wide variety of subjects ranging from agriculture, cooking, sewing, and handicrafts to public speaking, dramatics, and French conversation.

For further information about these activities, write to the Adult Education Service, Macdonald College, P.Q.

Visits to the College from individuals or groups with a common interest in the farm, the home, or the school, are always welcomed. However, in view of the present large registration and the somewhat limited facilities, it is often regrettably necessary to curtail visits at times when the student population is largest.

Groups of fifteen or more requiring meals and/or rooms are asked to give two weeks' advance notice and to confirm the numbers in the group not later than three days before arrival. All requests for visiting privileges should be addressed to The Secretary, Macdonald College, P.Q., who will be pleased to quote rates for meals and rooms, if required.

HANDICRAFTS

Macdonald College offers an eight-months course in general handicrafts, which gives theoretical and practical training in a variety of arts and crafts.

Weaving and leather-working are the main divisions of the course. In the weaving portion, once the fundamentals of using the various types of loom have been mastered, the students are given the opportunity of designing special patterns, which they then weave into cloth for making such articles as tablecloths, luncheon sets, skirt material, etc. Belts, lampshades, and tartan scarves are but a few of the other items which are woven during the course.

In leather-working, all designs are again original, from the simplest change purse to elaborately carved book covers or desk sets. Although most attention is paid to these two crafts, instruction is also given in creative crafts, metal-working, wood-working, whittling, and lino-block printing.

On completion of the course the student is equipped to teach handicrafts in hospitals, recreation centres, summer camps, etc., and it is also a splendid course for art teachers in public schools. Many graduates are now employed in this type of work; others are operating their own studios or workshops in all parts of Canada.

Junior Matriculation or its equivalent is required for admission. For full information and an application form write to the Handicrafts Department, Macdonald College, P.Q.

ADMISSION

The general requirements for admission are on page 4531. Details of the admission requirements for the various courses are on pages 4533, 4587, 4599, and 4611.

Applications for admission from students whose homes are outside Canada must be received before March 1st each year if they are to be considered for acceptance. The applicant will be notified whether or not his application is accepted as soon after that date as possible. The College does not guarantee to consider any applications from such students after this date.

CLASSES OF STUDENTS

1. *Regular Undergraduates* are students with complete matriculation qualifications and who are taking the regular work of their year toward the appropriate degree or diploma.

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2. *Limited Undergraduates* are students with complete matriculation but who, due to ill health or other circumstances, do not fit into the regular classification of years (first, second, etc.) and who may be unable to complete their work in the normal length of time.

3. *Partial Students* are those not proceeding to a degree or diploma, including those doing a qualifying year for graduate work, or those earning credits for transfer to another faculty or institution.

REGISTRATION

Students are required to register before 4 p.m. on the opening day of each session of the Faculty or School in which they have been accepted, and before entering residence to obtain a residence card from the Secretary's Office. Registration at a later date is permitted only to those who obtain the consent of the Dean or Director of the Faculty or School concerned.

Students are not permitted to enter any class until they have registered.

Upon registering students are required to sign the following declaration:—"I hereby accept and submit myself to the rules and regulations of Macdonald College, and of the Faculty or School thereof in which I am registered, and to any amendments thereto which may be made while I am a student of the College, and I promise to observe the same."

RESIDENCE

Men students in residence live in Brittain Hall, named in honour of Dr. W. H. Brittain, Vice-principal of Macdonald College from 1935 to 1955. The residence for women is named Stewart Hall in honour of Mr. and Mrs. Walter M. Stewart, long-time friends and benefactors of the College. A subsidiary residence for women students is also maintained on the third floor of the Main Building.

Macdonald College does not have residence accommodation for all the students who enroll, and acceptance of the application for admission to a course of study does not imply that residence accommodation will be available.

Any student wishing to live in one of the College residences must apply for residence accommodation well in advance of the opening of the session. Forms of application for residence accommodation are sent with letters of acceptance.

A deposit of $25.00 must accompany the application for accommodation. If the application is accepted the deposit will be deducted from the payment due on entrance. The College guarantees to refund the deposit if the application is refused, or is cancelled by the applicant at least three weeks prior to the date of registration for the course concerned.

All students who have been in residence during the session must apply for re-admission for the following year, and make a deposit of $25.00, before leaving at the end of the session, should they wish to have space reserved for them. This deposit will be refunded if the application is not accepted, or is cancelled by the applicant three weeks prior to the date of registration for the course in which he or she is enrolled. If the application is accepted, the deposit will be deducted from the payment due on entrance.

A number of rooms are available in private homes in Ste. Anne de Bellevue; a list of these may be obtained from the Registrar's Office. Most are located within a few minutes' walk of the College. Students rooming out may have all their meals in the College dining room and participate fully in all regular College activities.

All students, whether living in residence or not, are registered in one or other of the Halls of Residence, as well as in their respective Faculties or Schools.

Due to the necessity of accommodating conventions and short courses during the summer months, resulting in a limited time available for repairs and cleaning, no student will be admitted to residence before the date set for registration in the course for which he or she has been accepted. Exceptions to this rule will be made in the case of certain student officers whose duties require their presence before the opening date, members of the football team who have been accepted for pre-season training, students preparing for supplemental examinations and other students under exceptional circumstances by permission of the Warden.

Only students who are employed by the College may remain in residence during the summer months, and this with permission of the Warden. For the Christmas holiday period see page 4527.

Students who have reserved accommodation and who are returning early to write, or prepare for, supplemental examinations, may enter residence, by special permission, not earlier than one week before the date of their first examination. Application for early accommodation must be sent with the application for supplemental examination, before September 1st. The charge for room and board for this period will be $12.50 for a week or any part of a week.

Students may not invite relatives or friends to stay overnight in the residence without permission from the Warden of Residence.

For the admission of visitors to the Dining Room tickets must be purchased at the Dietitian's Office, Stewart Hall, at the Administration Office in the Main Building, or from the doorman on duty.

Students are held responsible for the care of their rooms and of their furnishings.

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Students are recommended to mark clearly, before coming to the College, all articles of wearing apparel, sheets, pillow cases, etc.

Detailed regulations are printed separately and issued to students after arrival.

ROOM FURNISHINGS

Bedrooms are furnished with closets, beds, mattresses, blankets, pillows, and the necessary furniture.

Each student is expected to provide his or her own laundry bag, toilet soap, drinking glass, four sheets, about 90 inches long, 60 inches wide; two pillow covers, 34 inches long, 20 inches wide; hand towels and bath towels; flashlight.

Students may bring rugs, pictures, etc., but are not allowed to drive tacks or nails into walls or woodwork, nor to paste pictures on the walls.

Women students are required to provide sash curtains and curtain rods for the windows in their rooms. Each window is provided with curtain cranes, and students may bring and hang drapes if they wish.

CONDUCT AND ATTENDANCE

The general responsibility for the maintenance of discipline in each residence is vested in a Warden, but, through a system of self-government, students are encouraged to accept the greatest possible amount of responsibility in connection with their own affairs. Enforcement of necessary regulations, exaction of disciplinary measures, and regulation of conduct *in and out of residence*, is largely in the hands of a House Committee for each residence, elected by the students from among their own number.

Matters of discipline connected with or arising from the general arrangement for teaching within a Faculty or School are under the jurisdiction of the Dean of the Faculty or Director of the School concerned.

Students may be admonished by a professor or instructor for improper conduct and may be reported to the Dean or Director concerned. If considered advisable, such conduct shall be reported to parents or guardians.

Students found guilty of immoral, dishonest, or other improper conduct, the violation of rules, or wilfully causing damage to persons or property, shall be liable to College discipline, which includes the power of expulsion (subject to the approval of the Senate of McGill University),

of suspension from classes or residence, (also in the case of women students, confinement to residence), of exclusion from all College functions, including class or society meetings, plays, dances, etc., of disqualification from competing for honours or prizes, and of levying fines. Fines may also be imposed or assessments made for damages made by individuals or groups of students.

Bringing liquor into the College is considered a serious breach of discipline, and students who indulge in the use of liquor, or who frequent places where it is sold, may be required to withdraw from the College.

Students are not permitted to bring firearms into their rooms, nor is the use of firearms allowed on the College grounds.

Women students are forbidden to go on the river—winter or summer. "Hitchhiking" is not permitted.

Gambling is not permitted on College property.

Unauthorized entrance to Stewart Hall or subsidiary residences by men students, or to Brittain Hall by women students, will result in immediate suspension of the guilty persons, followed by expulsion proceedings.

Students are requested not to make application for additional leave either before or after holiday periods, as such leaves can only be granted in case of illness or other exceptional circumstances.

For late registration or for absence from classes on the last day before or the first day following a holiday period, there will be a penalty of $3.00 for each day or part of a day.

During illness students are under the direction of the Medical Officer and may not leave the residence or infirmary without his permission.

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students. Absences can only be excused on the ground of necessity or illness, of which proof may be required. Special attention is called to the fact that the completion of all laboratory work is obligatory and the opportunity to make up work missed can only be provided in the case of properly excused absences.

The Faculty has the power to refuse examinations to those students who persist in absenting themselves from classes without permission.

Any student who is unwilling to submit cheerfully to the restrictions of college life, whose conduct does not furnish satisfactory evidence of diligence and earnestness of purpose, or whose work is definitely unsatisfactory, may be placed on probation, or may be required to withdraw from the college.

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Degrees of probation are as follows:

Probation 1 The student is permitted to remain on trial, subject to satisfactory work and conduct.

Probation 2 The student is not allowed to participate in competitive events, nor to take part in plays or other activities involving undue loss of time.

LEAVE OF ABSENCE

WOMEN STUDENTS

In order to avail themselves of leave privileges, women students in residence must present at the beginning of the session a form signed by parent or guardian giving general permission or specifying the manner in which leave may be spent. Forms for this purpose, and details of leave allowances, are sent to all students.

The amount of leave permitted is based on the student's year. A student is entitled to the leaves accorded those in her year only while in good academic standing. Conditioned students in the Second, Third or Fourth year have the allowances granted to the year below.

Except in cases of emergency, telephone messages or telegrams requesting leave of absence for women students will receive no consideration.

Students wishing to stay at hotels, lodges, etc., while on leave, or to go on skiing trips, are required to have the written consent of their parents to do so.

On no account shall a student be absent from college without having complied with the regulations regarding registration of leaves, or without the knowledge and consent of the Warden. Absence from College without permission is a serious offence which renders the student liable to instant suspension or dismissal. If prevented from returning after an absence, due to illness or other cause, students must advise the Warden immediately, and these students must report to the Warden's office immediately upon their return.

Students are urged to have dental work attended to before entrance, though dental appointments will be allowed in cases of urgency. Appointments to visit a physician are allowed on production of a letter from the physician indicating the date and hour of the appointment.

All correspondence regarding the conduct of women students in residence should be addressed to The Warden, Stewart Hall, Macdonald College, P.Q.

MEN STUDENTS

First Year Diploma and Degree students must obtain permission from the Dean should they wish to have overnight leave of absence. All students who expect to be absent from the College should leave some record of their movements.

VISITORS

Women students in residence may receive visitors any day between the hours of 4.00 and 6.00 p.m. and from 7.00 until 9.00 p.m., and at any time up to 11.45 p.m. on Saturdays. Visitors may be shown over the Residence only on Saturdays, except in the case of parents or friends from a distance. Guests may be entertained in the Reception Rooms and the Common Room; only parents and women friends may be shown students' bedrooms.

Women visitors to Brittain Hall may be entertained in the Reception Rooms only.

MUSIC

Music finds a place in the recreative and social activities of the College. Concerts, organ recitals, lectures, etc., will be given from time to time. It is suggested that those having musical instruments should bring them.

FEES

The College reserves the right to make changes without notice in its published scale of tuition, board and room, and other fees. Fees are not refundable except under special conditions as described below.

I. TUITION FEES. These fees include all the regular charges for registration, tuition, laboratories, libraries, Health Service, student activities, etc.

REGULAR UNDERGRADUATES

B.Sc.(Agr.) Course	$250.00
B.Sc.(H.Ec.) Course	250.00
Diploma Course in Agriculture	
(a) Children of farmers of the Province of Quebec, the Ottawa Valley in Ontario, and the Maritime Provinces	35.00
(b) All others	125.00
Homemaker Course	
(a) Children of farmers of the Province of Quebec	40.00
(b) All others	350.00
Handicrafts Course	375.00

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LIMITED UNDERGRADUATES

Per unit of instruction (1 lecture or 1 laboratory period per week per term) 25.00

(Minimum per session $100.00; maximum per session $250.00)

PARTIAL STUDENTS

Per unit of instruction 25.00

(Minimum per session $100.00)

II. SPECIAL FEES AND PENALTIES.

Late registration (unless excused by the Dean)	5.00
Late registration after first week	10.00
Late payment (after specified date)	2.00
Conferring degree *in absentia*	10.00
Duplicate diploma	10.00
Transcript of record	1.00
Supplemental examination, per paper	2.00

III. STUDENT ACTIVITY FEE

There are various student activities at the College, such as the athletic associations, literary and debating society, publications, class societies, etc. which the students are expected to support. The affairs of these organizations are in the hands of the students themselves and their operations are financed from a student activity fee of $16.00 which is included in the tuition fee listed above. The student activity fee is distributed as follows: Students' Council general funds $1.50; students' recreation centre $1.00; accident insurance $2.50; student organizations $11.00.

IV. BOARD AND RESIDENCE (per session, exclusive of the Christmas holidays)

B.Sc.(Agr.) Course	361.00
B.Sc.(H.Ec.) Course	361.00
Diploma Course in Agriculture	250.00
Homemaker Course	450.00
Handicrafts Course	400.00

Students are not encouraged to remain in residence during the Christmas holidays. If, however, due to exceptional circumstances, special permission to remain in residence has been obtained from the Warden, the cost for room and board for this period will be $12.50 for a week or any part of a week.

SINGLE ROOMS

There is an extra charge for occupancy of the few single rooms in each residence. The sessional rates for single rooms may be obtained on application to the Secretary.

REGULATIONS CONCERNING PAYMENT, AND REMISSION, OF FEES

1. Tuition and board and residence charges are payable at the time of registration.

2. The College does not issue bills for fees.

3. Fees may be paid in two instalments, one at the beginning of the session, and one on January 15th following. In such case an instalment fee of $5.00 is charged. First instalment—one half of the total fees plus $2.50 instalment fee, less deposits already paid. Second instalment—balance of total fees plus $2.50 instalment fee.

More extended terms of payment may be arranged, where necessary, with the permission of the Secretary. In special cases of hardship, application may be made for a Macdonald College Bursary, etc. See section on Bursaries and Loan Funds, page 4616.

4. A list of the registered students whose accounts with the Secretary are in arrears will be sent to the Dean or Director of the Faculty or School concerned, on receipt of which the Dean or Director shall suspend these students from attendance; they will not be readmitted to classes until the account is settled, or a satisfactory arrangement is made with the Secretary.

5. A student who withdraws from the College during the course of the academic year must cancel his registration at the Registrar's Office, and, if in residence, return his meal ticket and residence card to the Secretary's Office.

6. In the case of students who, in spite of the fact that they leave the College before the end of the academic year, receive full credit for the year towards their degree, there shall be no refund of tuition fees.

7. In the case of students who leave during the academic year and do not receive credit beyond the period of their attendance, tuition fees shall be remitted on the following basis:

(a) In those Faculties or Schools where the academic year is divided into two terms, half of the annual fees shall be remitted to a student who leaves prior to the beginning of the second term.

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(b) In those Faculties or Schools where the year is divided into three terms, one third of the fees shall be returned for each term that begins after the departure of the student.

8. No tuition fees shall be refunded for any term during which the student has attended classes, even though he leaves before the term has finished.

9. Residence fees are payable for the full academic year and will not be refunded, except in special circumstances.

10. The Dining Room portion of the residence fees is refundable in special circumstances to students who leave the College permanently during the session.

Avoidable breakage or damage to College property or equipment by a student, is charged to him on receipt of a report from the Chairman of the department concerned.

The Administration Office is open to receive payments from 9 a.m. to 4.30 p.m. daily—except Saturday, on which day the hours are from 9 a.m. to 12 noon.

All cheques, money orders, etc., should be drawn to the order of "The Secretary, Macdonald College," and should be made payable at par.

LAUNDRY SERVICE

Weekly laundry service at moderate prices is provided by a Montreal laundry to which students may send their personal washing, sheets, pillow covers, and towels. Printed lists will be furnished, two copies of which, properly filled out, must accompany each parcel. Fully equipped laundry rooms are also provided in each residence for students' use.

HEALTH SERVICE

The College Health Service provides medical examinations for all men and women students at the beginning of each session. The examination for students entering for the first time includes a complete clinical check, together with an X-ray of chest and routine laboratory procedures.

All examinations are by appointment after registration. The examination is compulsory for all students. Any student who fails to keep this appointment is subject to later examination for which a charge of $2.00 is made. Any student who fails to have a medical examination by the Health Service is subject to disciplinary action by the University authorities.

Medical and nursing attendance, major operations and illness excepted, will be provided to all students while in attendance at the College. During illness students are under the direction of the Medical Officer and may not leave the residence or infirmary without his permission.

If a student's admission to a city hospital is ordered by the College Medical Officer, one half of all public ward charges is paid by the College, provided that the total obligation assumed by the College does not exceed $125.00 in any one session for any one student. Should a student desire private accommodation, the difference in cost must be borne by him.

This contribution towards hospital expenses is made only when the illness or other condition requiring hospital treatment was not present or was unknown or undetected at the time of admission.

During the session, all students are covered by a group accident insurance policy, the premium for which is included in the student activity fee.

BOOKS

The prescribed textbooks, and classroom and laboratory supplies, may be purchased at the College Book Shop.

HOUSEHOLD SCIENCE TRIPS

Students in Household Science are taken to visit various institutions in connection with their work, from time to time during their course, more especially in the senior years. Each student is responsible for her own expenses, which are kept to the minimum amount.

SUPPLIES

Material and supplies required for classes in Textiles and Clothing are provided by the students concerned and purchased at the direction of the instructor.

OUTFIT REQUIREMENTS FOR WOMEN STUDENTS

SCHOOL OF HOUSEHOLD SCIENCE:—No uniforms are required in the First year of the B.Sc.(H.Ec.) course. Students in the Homemaker Course, and in the Second, Third, or Fourth year of the B.Sc.(H.Ec.) course will be advised of the uniform requirements on acceptance or promotion.

GYMNASTIC COSTUME

Women students taking work in the gymnasium are required to wear the regulation gymnastic costume consisting of a tunic, teddy blouse, briefs, and short, white woollen socks and running shoes. The tunic, blouse, and briefs must be bought at the College; the current prices are $5.00, $2.25 and $1.00, respectively.

Students wishing to swim must provide themselves with bathing suits.

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Faculty of Agriculture

The following courses of study are offered in the Faculty of Agriculture:—

I. **Courses in Agriculture**—

A four-year Course leading to the Degree of Bachelor of Science in Agriculture, [B.Sc.(Agr.)] (page 4533).

A two-year Diploma Course (page 4587).

Advanced Diploma Course (page 4596).

Graduate Courses in the Faculty of Graduate Studies and Research, McGill University (page 4585).

II. **Courses in Household Science:**—

A four-year Course leading to the Degree of Bachelor of Science in Home Economics [B.Sc.(H.Ec.)] (page 4598).

A one-year (Homemaker) Course (page 4611).

III. **Specialist Teaching Certificate:**—

Offered in collaboration with the Institute of Education (page 4584).

ENTRANCE REQUIREMENTS

GENERAL

All candidates for admission:—

1. Except where otherwise provided, must have passed their seventeenth birthday.
2. Must produce satisfactory evidence as to moral character.
3. Must furnish medical certificate of physical health on forms supplied by the College. All students entering the University for the first time are required to present a certificate, or other satisfactory evidence, of successful vaccination against smallpox. Students should be vaccinated before they come to the College. If they have not complied with this Government regulation, they will be vaccinated at the College and a fee of $5.00 will be charged. Failure to be vaccinated before a certain date in the term may result in the imposition of a fine of an additional $5.00.

When the number of women candidates is in excess of the accommodation, preference will be given to those whose homes are at a distance.

PERMISSION TO STUDY

Every candidate for admission to the Degree Course in Agriculture must, before beginning his course, obtain approval of his application from La Corporation des Agronomes, if he intends to practise as a professional agriculturist in the Province of Quebec after graduating. Forms of Application for Permission to Study and full particulars may be obtained from La Corporation des Agronomes de la Province de Québec, Room 410, 10 St. James St. W., Montreal, or from the Registrar, Macdonald College.

Failure to comply with the regulations of the Corporation may cause a delay of a year or more before the candidate may be legally authorized to practise his profession in the Province of Quebec. Application for permission to study must be made before August 1st, 1957.

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B.Sc.(Agr.) Course

This is a four-year course leading to the degree of Bachelor of Science in Agriculture; the degree when abbreviated is designated B.Sc.(Agr.).

The curriculum is organized with equal standards and similar plans to those of the other faculties of the University. During the first two years the work undertaken is common to all students and is limited to subjects which are basic in the study of all branches of agriculture. In the Third and Fourth years the student may specialize in a single branch of agriculture, or, in special cases, he may choose a combination of related subjects. In either case the outline of work must offer a comprehensive training in the major work and cognate subjects.

ENTRANCE

1. For General Requirements, see page 4531.

2. All candidates for admission to the four-year course leading to the B.Sc.(Agr.) degree must produce one of the certificates indicated below. With the modifications noted, this applies also to all candidates for admission to the B.Sc.(H.Ec.) course.

a. A certificate of having passed the Junior School Certificate examination for entrance to the Faculty of Agriculture, which is held in June at McGill University and at other centres, and in September at McGill University only. All enquiries relating to this examination should be addressed to The Registrar, McGill University, Montreal 2, Que.

Every candidate must make application on a form which may be obtained from the Registrar's office, McGill University, Montreal. This application, with the proper fee, must reach the Registrar's office before 20th May for the June examination and before 20th August for the September examination. After these dates applications may be accepted for the Montreal centre only. A special late fee of $1.00 is charged for such applications. The fee is $2.00 per paper with a maximum fee of $15.00.

Subjects required for matriculation into the Faculty of Agriculture are:

Group	No. of Papers	
1.	2	English
2.	1	History
3.	2	Latin *or* French *or* German *or* Spanish (French preferred)
4.	2	Elementary Mathematics

5. 1 Physics *or* Chemistry *or* Biology.

EITHER

6. 2 Latin *or* French *or* German *or* Spanish (if not already chosen).

OR

Any two of the following papers not already chosen:—

a. Intermediate Algebra

b. Intermediate Geometry and Trigonometry

c. *Botany
*Biology

d. Chemistry

e. Physics

f. Drawing

g. Geography

h. Music [B.Sc. (H.Ec.) candidates only]. (Music and Drawing may not both be chosen.)

i. Agriculture

j. North American Literature

k. Household Science

Total 10 papers.

An examination in Zoology of other reputable universities or recognized public examining boards will be accepted as an alternative to Botany or Biology.

To obtain entrance standing, a candidate must pass in every one of the above 10 papers and secure an average mark of at least 60% in the 10 papers combined. However, a student who fails in one or more of the papers may qualify for admission provided (a) his average in the 10 papers is not less than 65%, and (b) he has no mark in any of the 10 papers below 40%. Note that the above requirements do not correspond in all particulars to those for obtaining the High School Leaving Certificate in the Province of Quebec, although the latter examinations are given recognition insofar as they fulfil McGill requirements.

*Botany and Biology may not both be chosen.

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b. The following certificates are accepted in lieu of the Junior School Certificate examination for admission to the Faculty of Agriculture provided that pass standing, according to the standards of the various examining bodies, is shown thereon in the subjects required in "*a*" above:

Quebec: The High School Leaving Certificate.
The Catholic High School Leaving Certificate.

Ontario: Grade XII Certificate (including a statement of marks received in both Grades XI and XII.

British Columbia and New Brunswick: Junior Matriculation.

Alberta, Manitoba, Newfoundland, Nova Scotia and Saskatchewan: Grade XI Certificate.

Prince Edward Island: Second Year Certificate of Prince of Wales College.

United States:
Certificates issued by the College Entrance Examination Board.

c. Great Britain:
In the General Certificate of Education, passes in five acceptable subjects at the Ordinary level, including English and Mathematics, will be the minimum standard for admission.

d. Miscellaneous:
Other certificates, such as those issued by reputable universities or recognized public examining boards, will be judged on their merits and accepted insofar as they meet the entrance requirements.

Students intending to enter by certificate should in no circumstances come to the College without having obtained from the Registrar a statement of the value of the certificates they hold.

Students with incomplete requirements may obtain standing in subjects included in the McGill School Certificate by writing McGill examinations.

COURSE REQUIREMENTS

The requirements for graduation are:—

(a) Pass standing in all courses of the First and Second years, as outlined below.

(b) Pass standing in the Third and Fourth year courses equivalent to a minimum of 11 courses.

(c) Satisfactory distribution and concentration of courses:—See *Courses of Study* below.

(d) *Practical experience.* Satisfactory fulfilment of regulations concerning practical and professional experience, as below.

At least one season of farm experience is essential for admission to certain options in agriculture. Students who have not secured such experience by the beginning of the Third year may find themselves ineligible for admission to these options. In the case of students from outside Canada, this experience is best obtained in the country from which the student comes.

Students majoring in Agronomy are required to spend one summer in the Agronomy Department at the College, or at some other approved college or experimental farm. This may be between the Second and Third, or the Third and Fourth years. Students having extensive farm experience as a background are likely to find a wider range of opportunities for employment in the agronomic field.

Students majoring in Agricultural Engineering are required to have at least one season of farm experience and to work for a summer in some phase of agricultural engineering work approved by the Agricultural Engineering Department.

Students entering the Animal Husbandry option are required to present satisfactory evidence of having worked for a total of at least twelve months on a livestock farm.

Students entering the General Agriculture option are required to have spent at least twelve consecutive months on an approved farm.

Students majoring in Horticulture are required to spend one summer in the Horticulture Department at the College, or at some approved vegetable farm, fruit farm, or nursery.

Students majoring in Entomology or Plant Pathology are required to spend one summer in field or laboratory work, either at the College under the direction of the department concerned, or in one of the Government laboratories, or in some other place approved by the department concerned.

Students majoring in Poultry Husbandry are required to work for a summer on a poultry farm approved by the Poultry Husbandry Department.

No summer work or practical experience requirements need be met in the case of students majoring in Agricultural Bacteriology, Agricultural Chemistry, Agricultural Economics, Entomology-Parasitology or General Biology.

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SYLLABUS

B.Sc. (Agr.) Course

SUBJECTS	Course Numbers	Unit Value	Periods per week		Term Given
			Lects.	Labs.	
FIRST YEAR					
Agriculture:					
General Agriculture	110	6	2	1	Both
Botany:					
Introductory Botany	110	8	2	2	Both
Chemistry:					
Inorganic Chemistry	110	10	3	2	Both
English:					
Composition	114	4	1	1	Both
Literature	116	4	2	..	Both
Mathematics:					
Plane Trigonometry	111	3	2	..	First
	..	..	1	..	Second
Algebra	112	3	1	..	First
	..	..	2	..	Second
Physics:					
General Physics	112	8	3	1	Both
SECOND YEAR					
Agriculture:					
General Agriculture	220	6	2	1	Both
Chemistry:					
Organic Chemistry	220	10	3	2	Both
Economics:					
Elementary Principles	220b	3	3	..	Second
*English:					
Modern Literature	225	4	2	..	Both
or					
Speaking and Writing	226	4	2	..	First
	...	..	1	1	Second
Mathematics:					
Calculus	220	6	3	..	Both
Physics:					
General Physics	222	8	3	1	Both
Zoology:					
General Zoology	220	8	2	2	Both

*Second year students must take either English 225 or English 226.

See also elective courses in French and History, pages 4573, 4574.

SYLLABUS

B.Sc.(Agr.) Course

Third and Fourth Years

SUBJECTS	Course Nos.	Unit Value	Periods per week		Term Given	Session offered (if alternating)
			Lects.	Labs.		
Agricultural Engineering:						
Farm Power Machinery	334b	4	2	2	Second	
Agricultural Drafting	335	6	..	3	Both	
Applied Mechanics	337	4	2	..	Both	
Shopwork	338	6	1	2	Both	
Farm Buildings	431b	4	2	2	Second	
Spraying and Dusting Equipment	432b	2	..	2	Second	
Farm Machinery	433a	4	2	2	First	
Projects	436b	3	..	3	Second	
Engineering for Land Development	439	6	2	1	First	}
			2	..	Second	}
Farm Electrification	440	6	2	1	Both	
Agronomy:						
Cereal Crops	331b	3	2	1	Second	
Field Crop Production	343	6	2	1	Both	
Introduction to Agronomic Crops.	345	3	..	2	First	}
			..	1	Second	}
Hay and Pasture Crops	432a	3	2	1	First	
Plant Breeding	435b	3	2	1	Second	
Crop Adaptation and Distribution	436b	3	2	..	Second	
Soil Management	438b	2	2	1	Both	
Projects	442	2	..	2	First	
Statistical Methods	444a	2	..	..	First	
Miscellaneous Agronomic Crops.	446a	2	2			
Animal Husbandry:						
Swine Production	330a	3	2	1	First	
Dairy Cattle Production	334b	3	2	1	Second	
Judging and Management	335b	3	..	3	Second	
Animal Breeding	338b	3	2	1	Second	
Horses, Sheep, Beef Cattle	441b	3	2	1	Second	
Projects	442a	3	..	3	First	
Judging and Management	443a	3	..	3	First	
Animal Pathology:						
Elementary Physiology	330b	3	3	..	Second	
Disease Prevention	431a	3	3	..	First	
Poultry Diseases	432b	2	..	2	Second	
Disease Prevention	434b	3	2	1	Second	
Bacteriology:						
General Microbiology	330b	4	2	2	Second	
Laboratory Methods	333b	4	1	3	Second	
Soil Microbiology	432a	4	2	2	First	
Food Microbiology	434b	4	2	2	Second	
Dairy Bacteriology	435a	4	2	2	First	
Projects	436	9	..	3	First	}
			..	6	Second	}
Seminar	437	2	1	..	Both	
Physiology of Micro-organisms	438b	4	1	3	Second	
Botany:						
Plant Physiology	330b	4	2	2	Second	
Histology—Cytology	331b	3	2	1	Second	
Technique	334a	3	1	2	First	
Plant Morphology	432a	3	1	2	First	
Systematic Botany	433	3	..	2	First	}
			..	1	Second	}

SYLLABUS

B.Sc.(Agr.) Course

Third and Fourth Years (*continued*)

SUBJECTS	Course Nos.	Unit Value	Periods per week		Term Given	Session offered (if alternating)
			Lects.	Labs.		
Chemistry:						
Organic Preparations	331a	3	1	2	First	
Biochemistry	332a	4	2	2	First	
Quantitative Analysis	333a	6	2	4	First	
Qualitative Analysis	334b	6	2	4	Second	
Quantitative Analysis	335a	5	2	3	First	
Qualitative Analysis	336b	5	2	3	Second	
Physiological Chemistry	347b	4	2	2	Second	
Introductory Soil Science	354	8	2	2	Both	
Physical Chemistry	439	6	1	2	Both	
Projects	440	6	..	3	Both	
Seminar	441	2	1	..	Both	
Plant Biochemistry	448b	4	2	2	Second	
Food Chemistry	451a	4	2	2	First	
Advanced Food Analysis	452b	4	2	2	Second	
Dairying	430a	4	2	2	First	
Economics:						
Marketing of Farm Products	330b	3	3	..	Second	
Economics of Marketing	331b	3	3	..	Second	
Farm Accounting and Farm Management	332a	3	3	..	First	
Economic Analysis	333	6	3	..	Both	
Project	434c	3	..	3	Either	
English:						
Literature of Rural Life	331	3	1	..	First	
		..	2	..	Second	
Modern Drama	332	3	2	..	First	
		..	1	..	Second	
Extension Methods	330	4	1	1	Both	
Entomology:						
Insect Morphology	330	8	2	2	Both	
Technique	332b	2	..	2	Second	
Economic Entomology	433	8	2	2	Both	
General Entomology	434b	4	2	2	Second	
Systematic Entomology	435	8	2	2	Both	
Insect Ecology	436b	2	2	..	Second	1958-59
Seminar	437	2	..	1	Both	
Projects	438	4	..	2	Both	
French	100	6	3	..	Both	
	300	6	3	..	Both	
Genetics:						
Elementary Genetics	330a	5	3	2	First	
History	100	6	3	..	Both	
Horticulture:						
Pomology (Orchard Fruits)	338a	4	2	2	First	
Pomology (Small Fruits)	339b	4	2	2	Second	
Horticultural Crops	343a	3	2	1	First	
Horticultural Crops	344b	3	2	1	Second	
Vegetable Crops	431	8	2	2	Both	1958-59
Landscape Architecture	432a	4	2	2	First	

SYLLABUS

B.Sc.(Agr.) Course

Third and Fourth Years (*continued*)

SUBJECTS	Course Nos.	Unit Value	Periods per week		Term Given	Session offered (if alternating)
			Lects.	Labs.		
Horticulture:—*Continued*						
Floriculture	435b	4	2	2	Second	
Plant Breeding	436b	3	2	1	Second	
Seminar	437	2	..	1	Both	
Fruit and Vegetable Preservation	442a	3	2	1	First	
Mathematics:						
Elementary Differential Equations	330	2	1	..	Both	
Elementary Statistics	331	3	1	1	First	
		..	..	1	Second	
Nutrition:						
Fundamentals of Nutrition	430	6	2	1	Both	
Applied Animal Nutrition	432b	2	2	..	Second	
Project	433c	3	..	3	Either	
Parasitology:						
Seminar	434	2	..	1	Both	
Projects	435b	3	..	3	Second	
Protozoology	436a	4	2	2	First	1958-59
Medical Entomology	437b	4	2	2	Second	1958-59
Helminthology	438b	6	2	4	Second	1957-58
Physics:						
Biophysics	333a	4	2	2	First	
Biophysics	340a	2	1	1	First	
Meteorology	432b	1	1	..	Second	
Soil Physics	436a	2	1	1	First	
Molecular and Atomic Physics	438	4	2	..	Both	
Plant Pathology						
Technique	330b	3	1	2	Second	
Diseases of Plants	331a	4	2	2	First	
Mycology	333a	4	2	2	First	
Plant Pathology	336	8	2	2	Both	
Plant Pathology	432b	4	2	2	Second	
Projects	434	4	..	2	Both	
Seminar	435	2	..	1	Both	
Poultry Husbandry:						
General Poultry Husbandry	333a	4	3	1	First	
History of Breeds and Judging	431a	2	..	2	First	1957-58
Breeding Principles	434b	3	2	1	Second	1957-58
Poultry Farm Management	435	4	1	1	Both	
Research	436	4	..	2	Both	
Projects (3rd year)	437	2	..	2	Second	
Projects (4th year)	437	6	..	3	Both	
Poultry Nutrition	438b	3	2	1	Second	1957-58
Sociology:						
Introduction to Sociology	340c	3	3	..	Either	
Woodlot Management	330a	2	1	1	First	
Zoology:						
Technique	332a	2	..	2	First	
Comparative Vertebrate Anatomy	431	8	2	2	Both	1957-58

EVALUATION OF COURSES

For the purposes of evaluation, a full course consists of three lectures per week throughout the year, and is rated at 150 marks. A two-hour laboratory period equals one lecture period. More or less than full courses are rated proportionately. One "unit" is one lecture or one laboratory period per week for one term: six units constitute a full course.

COURSES OF STUDY

Before entering upon the Third year, students must prepare, in consultation with the professors under whom major subjects are to be taken, summaries of courses to be taken in the Third and Fourth years, which shall include the equivalent of not less than 11 nor more than 12½ full courses (*i.e.*, from 66 to 75 units). Term schedules must be approved by the Faculty.

During the Third and Fourth years, students may specialize in any one of the following subjects. In special cases, and when approved by Faculty, a combination of two subjects may be arranged. In this case not less than 3½ full courses (21 units) must be taken in each subject.

MAJOR SUBJECTS OFFERED

Agricultural Engineering
Agronomy
Animal Husbandry
Agricultural Bacteriology
Agricultural Chemistry
Agricultural Economics
Entomology
Entomology-Parasitology
Horticulture
Plant Pathology
Poultry Husbandry

In addition to the foregoing, courses are offered in General Agriculture and in General Biology, as follows:

GENERAL AGRICULTURE

This option is designed for students who do not care to follow one of the specialized courses offered but who wish to obtain a general training in agriculture together with the basic sciences. It offers the type of training asked for by those wishing to do extension work, to enter the commercial field, or to farm. It is arranged to meet the requirements of students who wish to give special attention to combinations of subjects which are not provided for otherwise. Though planned as a general course, it provides the possibility of pursuing graduate studies.

GENERAL BIOLOGY

This option is designed for students who do not desire to take one of the more rigid professional courses during their undergraduate years, but rather to select courses which will serve as a foundation to later specialization in one of the fields of Applied Biology as it relates to Agriculture. The courses in this option are arranged so that the student may emphasize either the botanical or the zoological sciences.

The following are the courses which are obligatory in the various options. Any additional courses needed to make up the minimum requirements of 66 units may be selected from any courses listed in the Announcement, subject to time table restrictions. No schedule may contain more than 75 units.

AGRICULTURAL ENGINEERING

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 334b	4	..	..	2	2
Agricultural Engineering 335	6	..	3	..	3
Agricultural Engineering 337	4	2	..	2	..
Agricultural Engineering 338	6	1	2	1	2
Animal Husbandry 334b	3	..	..	2	1
Chemistry 354 (lectures only)	4	2	..	2	..
Economics 332a	3	3	..	..	..
Mathematics 330	2	1	..	1	..
Plant Pathology 331a	4	2	2	..	..
Total units	36	11	7	10	8

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 431b	4	..	..	2	2
Agricultural Engineering 432b	2	..	..	..	2
Agricultural Engineering 433a	4	2	2	..	..
Agricultural Engineering 436b	3	..	..	..	3
Agricultural Engineering 439	6	2	2	2	..
Agricultural Engineering 440	6	2	1	2	1
Agronomy 343	6	2	1	2	1
Physics 436a	2	1	1	..	..
Total units	33	9	7	8	9

Total—69 units

AGRONOMY

PRODUCTION AND PLANT BREEDING GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 331b	3	..	..	2	1
Agronomy 345	3	..	2	..	1
Bacteriology 330b	4	..	..	2	2
Botany 330b	4	..	..	2	2
Botany 433	3	..	2	..	1
Chemistry 332a (lectures only)	2	2	..	..	..
Chemistry 354	8	2	2	2	2
Genetics 330a	5	3	2	..	..
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Total units	39	10	11	8	10

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 433a	4	2	2	..	..
Agronomy 432a	3	2	1	..	..
Agronomy 435b	3	..	..	2	1
Agronomy 436b	3	..	..	2	1
Agronomy 438b	2	..	..	2	..
Agronomy 442	2	..	1	..	1
Agronomy 444a	2	..	2	..	..
Agronomy 446a	2	2	..	..	..
Animal Husbandry 334b	3	..	..	2	1
Economics 331b	3	..	..	3	..
Entomology 434b	4	..	..	2	2
Plant Pathology 331a	4	2	2	..	..
Total units	35	8	8	13	6

Total—74 units

AGRONOMY

PRODUCTION AND SOIL FERTILITY GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 331b	3	..	..	2	1
Agronomy 345	3	..	2	..	1
Bacteriology 330b	4	..	..	2	2
Botany 330b	4	..	..	2	2
Botany 433	3	..	2	..	1
Chemistry 332a (lectures only)	2	2	..	..	..
Chemistry 354	8	2	2	2	2
Genetics 330a	5	3	2	..	..
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Total units	39	10	11	8	10

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 439 (1st term only)	4	2	2	..	..
Agronomy 432a	3	2	1	..	..
Agronomy 436b	3	..	..	2	1
Agronomy 438b	2	..	..	2	..
Agronomy 442	2	..	1	..	1
Agronomy 444a	2	..	2	..	..
Agronomy 446a	2	2	..	..	..
Bacteriology 432a	4	2	2	..	..
Chemistry 335a	5	2	3	..	..
Chemistry 336b	5	..	..	2	3
Chemistry 448b	4	..	..	2	2
Total units	36	10	11	8	7

Total—75 units

ANIMAL HUSBANDRY

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Husbandry 330a	3	2	1	..	..
Animal Husbandry 334b	3	..	..	2	1
Animal Husbandry 335b	3	..	..	..	3
Animal Husbandry 338b	3	..	..	2	1
Animal Pathology 330b	3	..	..	3	..
Bacteriology 330b	4	..	..	2	2
Chemistry 332a	4	2	2	..	..
Chemistry 347b (lectures only)	2	..	..	2	..
Genetics 330a	5	3	2	..	..
Mathematics 331	3	1	1	..	1
Physics 340a	2	1	1	..	..
Total units	35	9	7	11	8

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 343	6	2	1	2	1
Animal Husbandry 441b	3	..	..	2	1
Animal Husbandry 442a	3	..	3	..	..
Animal Husbandry 443a	3	..	3	..	..
Animal Pathology 431a	3	3	..	..	..
Animal Pathology 434b	3	..	..	2	1
Dairying 430a	4	2	2	..	..
Economics 331b	3	..	..	3	..
Nutrition 430	6	2	1	2	1
Nutrition 432b	2	..	..	2	..
Total units	36	9	10	13	4

Total—71 units

AGRICULTURAL BACTERIOLOGY

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Pathology 330b	3	..	..	3	..
Bacteriology 330b	4	..	..	2	2
Bacteriology 333b	4	..	..	1	3
Chemistry 332a	4	2	2	..	..
Chemistry 333a	6	2	4	..	..
Chemistry 334b	6	..	..	2	4
Chemistry 347b or Chemistry 448b	4	..	.	2	2
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Total units	38	7	9	10	12

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 444a	2	..	2	..	..
Bacteriology 432a	4	2	2	..	..
Bacteriology 434b	4	..	..	2	2
Bacteriology 435a	4	2	2	..	..
Bacteriology 436	9	..	3	..	6
Bacteriology 437	2	1	..	1	..
Bacteriology 438b	4	..	..	1	3
Soils:					
Chemistry 354 (lab. only in 1st term)	6	..	2	2	2
Total units for soils group	35	5	11	6	13
Foods:					
Chemistry 451a	4	2	2	..	..
Chemistry 452b (lectures only)	2	..	..	2	..
Total units for foods group	35	7	11	6	11

Total—73 units

AGRICULTURAL CHEMISTRY

ANIMAL BIOCHEMISTRY GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Pathology 330b	3	..	..	3	..
Bacteriology 330b	4	..	..	2	2
Chemistry 331a	3	1	2	..	..
Chemistry 332a	4	2	2	..	..
Chemistry 333a	6	2	4	..	..
Chemistry 334b	6	..	..	2	4
Chemistry 347b	4	..	..	2	2
Mathematics 330	2	1	..	1	..
Physics 333a	4	2	2	..	..
Total units	36	8	10	10	8

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 434b	4	..	..	2	2
Chemistry 439	6	1	2	1	2
Chemistry 440	6	..	3	..	3
Chemistry 441	2	1	..	1	..
Chemistry 451a	4	2	2	..	..
Chemistry 452b	4	..	..	2	2
Mathematics 331	3	1	1	..	1
Nutrition 430	6	2	1	2	1
Physics 438	4	2	..	2	..
Total units	39	9	9	10	11

Total—75 units

AGRICULTURAL CHEMISTRY

SOIL AND PLANT GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 330b	4	..	..	2	2
Botany 330b	4	..	..	2	2
Chemistry 332a	4	2	2	..	..
Chemistry 333a	6	2	4	..	..
Chemistry 334b	6	..	..	2	4
Chemistry 354	8	2	2	2	2
Mathematics 330	2	1	..	1	..
Physics 333a	4	2	2	..	..
Total units	38	9	10	9	10

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 438b	2	..	..	2	..
Bacteriology 432a	4	2	2	..	..
Chemistry 331a	3	1	2	..	..
Chemistry 439	6	1	2	1	2
Chemistry 440	6	..	3	..	3
Chemistry 441	2	1	..	1	..
Chemistry 448b	4	..	..	2	2
Mathematics 331	3	1	1	..	1
Physics 436a	2	1	1	..	..
Physics 438	4	2	..	2	..
Total units	36	9	11	8	8

Total—74 units

AGRICULTURAL ECONOMICS

Students electing Economics as a major subject take their Third year work at Macdonald College and their Fourth year work in the Department of Economics and Political Science at McGill University. They must have attained a standing in the first two years equivalent to at least second class honours according to the standards of the Faculty of Arts and Science, and have their courses approved by the Chairmen of the departments concerned. This option fulfils the academic requirements for admission to the Faculty of Graduate Studies and Research for work leading to the degree of Master of Arts. Unlike other options, a minimum of only 61 units is required.

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 343	6	2	1	2	1
Animal Husbandry 330a	3	2	1	..	..
or					
Horticulture 343a	3	2	1	..	..
Animal Husbandry 334b	3	..	..	2	1
or					
Horticulture 344b	3	..	..	2	1
Chemistry 354 (no lab. in 2nd term)	6	2	2	2	..
Economics 330b	3	..	..	3	..
Economics 331b	3	..	..	3	..
Economics 332a	3	3	..	..	..
Economics 333	6	3	..	3	..
Extension Methods 330	4	1	1	1	1
Total units	37	13	5	16	3

FOURTH YEAR (in Montreal)

SUBJECT	Course Number	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Economics	321	3	..	3	..
Economics	361	3	..	3	..
Economics	412	3	..	3	..
Elective		3	..	3	..
Total units		12		12	

321—Money and Banking.
361—Statistics.
412—Economic Analysis.

Total—61 units

ENTOMOLOGY

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Chemistry 332a	4	2	2	..	..
Entomology 330	8	2	2	2	2
Entomology 332b	2	..	..	..	2
Entomology 337	2	..	1	..	1
Genetics 330a (lectures only)	3	3	..	..	..
Physics 333a	4	2	2	..	..
Zoology 332a	2	..	2	..	..
Total units	25	9	9	2	5

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Entomology 433	8	2	2	2	2
Entomology 435	8	2	2	2	2
Entomology 437	2	..	1	..	1
Mathematics 331	3	1	1	..	1
Plant Pathology 331a	4	2	2	..	..
Total units	25	7	8	4	6

Third or Fourth Year (depending on session offered).

Entomology 436b 2 lects., per week, 2nd term (1958-59).

Entomology 438 2 labs., per week, both terms.

Zoology 431 2 lects., 2 labs., per week, both terms (1957-58).

Total—64 units

ENTOMOLOGY — PARASITOLOGY

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Pathology 330b	3	..	..	3	..
Chemistry 332a	4	2	2	..	..
Entomology 330	8	2	2	2	2
Entomology 332b	2	..	..	..	2
Parasitology 334	2	..	1	..	1
Physics 333a	4	2	2	..	..
Zoology 332a	2	..	2	..	..
Total units	25	6	9	5	5

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 330b	4	..	..	2	2
Entomology 435	8	2	2	2	2
Mathematics 331	3	1	1	..	1
Parasitology 434	2	..	1	..	1
Parasitology 435b	3	..	..	..	3
Total units	20	3	4	4	9

Third or Fourth Year (depending on session offered).

Parasitology 436a 2 lects., 2 labs., per week, 1st term. (1958-59)
Parasitology 437b 2 lects., 2 labs. per week, 2nd term. (1958-59)
Parasitology 438b 2 lects., 4 labs. per week, 2nd term. (1957-58)
Zoology 431 2 lects., 2 labs. per week, both terms. (1957-58)

Total—67 units

†GENERAL AGRICULTURE

THIRD YEAR—Obligatory courses

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 439	6	2	2	2	..
Agronomy 343	6	2	1	2	1
Animal Husbandry 334b	3	..	..	2	1
Chemistry 332a	4	2	2	..	..
Chemistry 354	8	2	2	2	2
Mathematics 331	3	1	1	..	1
Total units	30	9	8	8	5

THIRD YEAR—Elective courses †

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 345	3	..	2	..	1
Animal Pathology 330b	3	..	..	3	..
Botany 330b	4	..	..	2	2
Horticulture 344b	3	..	..	2	1
Plant Pathology 331a	4	2	2	..	..
Total units	17	2	4	7	4

†It is intended that elective courses to bring the total units up to the requirements (minimum 66, maximum 75), shall be chosen from those listed. However, other courses listed in the Announcement may also be elected.

Registration for third year students is on September 17th.

GENERAL AGRICULTURE

FOURTH YEAR—Obligatory courses

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Husbandry 330a	3	2	1	..	..
Bacteriology 330b	4	..	..	2	2
Economics 330b	3	..	..	3	..
Economics 332a	3	3	..	..	..
Extension Methods 330	4	1	1	1	1
Genetics 330a	5	3	2	..	..
Nutrition 430	6	2	1	2	1
Total units	28	11	5	8	4

FOURTH YEAR—Elective courses

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Entomology 434b	4	..	..	2	2
Poultry 333a	4	3	1	..	..
Total units	8	3	1	2	2

Total—58 units

GENERAL BIOLOGY

BOTANICAL GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Botany 330b	4	..	..	2	2
Botany 331b	3	..	..	2	1
Botany 334a	3	1	2	..	..
Chemistry 332a	4	2	2	..	..
Chemistry 448b	4	..	..	2	2
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Plant Pathology 331a	4	2	2	..	..
Total units	29	8	9	6	6

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 330b	4	..	..	2	2
Botany 432a	3	1	2	..	..
Entomology 434b	4	..	..	2	2
Genetics 330a	5	3	2	..	..
Plant Pathology 333a	4	2	2	..	..
Plant Pathology 435	2	..	1	..	1
Total units	22	6	7	4	5

Third or Fourth Year (depending on session offered).
Zoology 431 2 lects., 2 labs. per week, both terms (1957-58).

Total—59 units

GENERAL BIOLOGY

ZOOLOGICAL GROUP

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Botany 432a	3	1	2	..	..
Botany 433	3	..	2	..	1
Chemistry 332a	4	2	2	..	..
Chemistry 347b	4	..	..	2	2
Entomology 330	8	2	2	2	2
Entomology 437	2	..	1	..	1
Physics 333a	4	2	2	..	..
Zoology 332a	2	..	2	..	..
Total units	30	7	13	4	6

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Animal Pathology 330b	3	..	..	3	..
Bacteriology 330b	4	..	..	2	2
Entomology 434b	4	..	..	2	2
Entomology 437	2	..	1	..	1
Genetics 330a	5	3	2	..	..
Mathematics 331	3	1	1	..	1
Plant Pathology 331a	4	2	2	..	..
Total units	25	6	6	7	6

Third or Fourth Year (depending on session offered).

Entomology 436b 2 lects., per week, 2nd term. (1958-59)

Zoology 431 2 lects., 2 labs. per week, both terms. (1957-58)

Total—65 units

HORTICULTURE

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 330b	4	..	..	2	2
Botany 330b	4	..	..	2	2
Chemistry 332a	4	2	2	..	..
Chemistry 354	8	2	2	2	2
Horticulture 338a	4	2	2	..	..
Horticulture 339b	4	..	..	2	2
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Plant Pathology 331a	4	2	2	..	..
Total units					

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 444a	2	..	2	..	..
Agricultural Engineering 439 (1st term only)	4	2	2	..	..
Botany 433	3	..	2	..	1
Entomology 434b	4	..	..	2	2
Genetics 330a	5	3	2	..	..
Horticulture 432a	4	2	2	..	..
Horticulture 435b	4	..	..	2	2
Horticulture 436b	3	..	..	2	1
Horticulture 437	2	..	1	..	1
Total units					

Third or Fourth Year (depending on session offered)

Horticulture 431 2 lects., 2 labs., per week, both terms (1958-59)

Total—71 units

Horticulture specialists must take two of the following three groups: Horticulture 431; Horticulture 432a, 435b and Woodlot Management 330a; Horticulture 338a, 339b.

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PLANT PATHOLOGY

THIRD YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Bacteriology 330b	4	..	..	2	2
Botany 330b	4	..	..	2	2
Botany 331b	3	..	..	2	1
Botany 334a	3	1	2	..	..
Chemistry 332a	4	2	2	..	..
Mathematics 331	3	1	1	..	1
Physics 333a	4	2	2	..	..
Plant Pathology 330b	3	..	..	1	2
Plant Pathology 333a	4	2	2	..	..
Plant Pathology 336	8	2	2	2	2
Total units	40	10	11	9	10

FOURTH YEAR

COURSES	Unit Value	1st Term		2nd Term	
		Lects.	Labs.	Lects.	Labs.
Agricultural Engineering 432b	2	..	..	..	2
Botany 432a	3	1	2	..	..
Botany 433	3	..	2	..	1
Chemistry 448b	4	..	..	2	2
Entomology 434b	4	..	..	2	2
Genetics 330a	5	3	2	..	..
Horticulture 344b	3	..	..	2	1
Plant Pathology 432b	4	..	..	2	2
Plant Pathology 435	2	..	1	..	1
Total units	30	4	7	8	11

Total—70 units

POULTRY HUSBANDRY

THIRD YEAR

COURSES	Unit Value	1st term		2nd term	
		Lects.	Labs.	Lects.	Labs.
Animal Pathology 330b	3	..	..	3	..
Bacteriology 330b	4	..	..	2	2
Chemistry 332a	4	2	2	..	..
Economics 330b	3	..	..	3	..
Economics 332a	3	3	..	..	..
Genetics 330a	5	3	2	..	..
Physics 333a	4	2	2	..	..
Poultry 333a	4	3	1	..	..
Poultry 437 (2nd term only)	2	..	..	..	2
Total units	32	13	7	8	4

FOURTH YEAR

COURSES	Unit Value	1st term		2nd term	
		Lects.	Labs.	Lects.	Labs.
Agronomy 343 (1st term only)	3	2	1	..	..
Animal Pathology 431a	3	3	..	..	..
Animal Pathology 432b	2	..	..	..	2
Animal Husbandry 338b	3	..	..	2	1
or Chemistry 447b	4	..	..	2	2
Economics 331b	3	..	..	3	..
Mathematics 331	3	1	1	..	1
Poultry 435	4	1	1	1	1
Poultry 436	4	..	2	..	2
Poultry 437	6	..	3	..	3
Total units	31 or 32	7	8	6	10 or 11

Third or Fourth Year (depending on session offered).

Poultry 431a 2 labs. per week, 1st term (1957-58).
Poultry 434b 2 lects., 1 lab. per week, 2nd term (1957-58).
Poultry 438b 2 lects., 1 lab. per week, 2nd term (1957-58).

Total—71 or 72 units

DESCRIPTION OF COURSES—

DEPARTMENT OF AGRICULTURAL ENGINEERING

Professor	ANGUS BANTING
Associate Professor	J. H. COOPER
Assistant Professor	A. C. MALLOCH

334b. FARM POWER MACHINERY

A study of internal combustion engines, tractors, and power transmission.

2 lects., 2 labs., per wk., 2nd term. *Professor Cooper*

Text Book:—Jones, Farm Gas Engines and Tractors.

335. AGRICULTURAL DRAFTING

The use of drawing instruments, projection, elementary architectural drawing. Perspective, architectural, and machine drawing.

Text Book:—French and Vierek, Engineering Drawing.

3 labs. per wk., 2 terms. *Professor Malloch*

337. MECHANICS OF MATERIALS

Resolution and composition of force systems; force polygons; centres of gravity; reactions and stresses in structures. Strength of materials.

2 lects. per wk., 2 terms. *Professor Cooper*

Text Book:—Poorman, Applied Mechanics.

338. SHOPWORK

Hand and power equipment in woodworking; structural joints and fastenings; ropework and belting. *Professor Malloch*

Metals: properties and physical tests, heat treatments, forging, welding (forge, flame, arc), soldering. Machine shop techniques. *Professor Cooper*

1 lect., 2 labs., per wk., 2 terms.

Text Book:—Ashcroft and Easton, General Shopwork.

431b. FARM BUILDINGS

Requirements, design, and construction of various farm buildings, insulation, heat loss, ventilation and sanitation.

Prerequisite:—Agr. Eng. 335 and 337.

2 lects., 2 labs., per wk., 2nd term. *Professors Banting and Malloch*

Text Book:—Foster and Carter, Farm Buildings.

432b. SPRAYING AND DUSTING EQUIPMENT

A laboratory study of spray pumps, dusting machines, spray guns, and other equipment.

2 labs. per wk., 2nd term. *Professor Malloch*

433a. FARM MACHINERY

A study of tillage, harvesting, and crop processing machinery. Field tests, dynamometer studies, hitches, and adjustments.

2 lects., 2 labs., per wk., 1st term. *Professor Malloch*

Text Book:—Smith, Farm Machinery and Equipment.

436b. PROJECTS

Second term. Credit—one-half course

439. ENGINEERING FOR LAND DEVELOPMENT

Part I. Methods of land surveying applicable to agriculture, including area surveys, levelling, mapping, and making of drainage profiles: land drainage, elements of hydraulics. Part II. Engineering aspects of erosion control, farm pond design, irrigation, and land clearing. Prerequisite, Part I. Non-specialists may elect Part I only if desired.

Part I, 2 lects., 1 lab., per wk., 1st term and 5 days of field work prior to opening date of session. Part II, 2 lects. per wk., 2nd term.

Professor Banting

Text Books:—For students taking Part I only: Roe and Ayres, Engineering for Agricultural Drainage.

For students taking Parts I and II: Schwab, Edminster and Barnes, Soil and Water Conservation Engineering.

440. FARM ELECTRIFICATION

Applied electricity, current distribution on the farm, wiring codes, motors and electric equipment for the farm.

2 lects., 1 lab., per wk., 2 terms. *Professor Cooper*

Text Book:—Gray and Wallace, Principles and Practice of Electrical Engineering.

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AGRICULTURE

Offered jointly by the departments of Agricultural Engineering, Agronomy, Animal Husbandry, Economics, Horticulture, and Poultry Husbandry.

110. AGRICULTURE

An orientation course offering a general view of agriculture, and some consideration of the nature and problems of the various branches in relation to each other and to the sciences.

1st Yr.:—2 lects., 1 lab., per wk., 2 terms.

220. AGRICULTURE

In continuation of Agriculture 110.

2nd Yr.:—2 lects., 1 lab., per wk., 2 terms.

DEPARTMENT OF AGRONOMY

Professors	H. A. STEPPLER, *Chairman of the Department*
	L. C. RAYMOND (*Post-retirement*)
Associate Professor	R. I. BRAWN
Assistant Professor	H. R. KLINCK
Lecturer	J. S. BUBAR
Instructor and Field Superintendent	W. W. KEELER

331b. CEREAL CROPS

An intensive study of cereal crops; production, marketing, uses, types varieties, strains, commercial and seed grades.

Prerequisite:—Agronomy 345.

2 lects., 1 lab., per wk., 2nd term. *Professor Klinck*

343. FIELD CROP PRODUCTION

For students other than specialists in Agronomy. First term: a study of forage crops; adaptation, culture, preservation, uses and seed production. Second term: a similar study of grain crops.

2 lects., 1 lab., per wk., 2 terms. *Mr. Bubar and Professor Klinck*

345. INTRODUCTION TO AGRONOMIC CROPS

A study of the characteristics of important agronomic crops.

Prerequisite for Agronomy 331b, 432a, 446a.

2 labs. per wk., 1st term.

1 lab. per wk., 2nd term. *Mr. Bubar*

432a. HAY AND PASTURE CROPS

Similar to Cereal Crops.

Prerequisite:—Agronomy 345.

2 lects., 1 lab., per wk., 1st term. *Professor Steppler*

435b. PLANT BREEDING

Problems, methods, and the interpretation of results, in the breeding of field crops. Prerequisite:—Genetics 330a, and Botany 433 or one Crops Course.

2 lects., 1 lab., per wk., 2nd term. *Professor Brawn*

436b. CROP ADAPTATION AND DISTRIBUTION

Factors influencing crop adaptation and their effect on distribution. Agronomic organizations.

2 lects., 1 lab., per wk., 2nd term *Professor Brawn*

438b. SOIL MANAGEMENT

An analysis of factors influencing soil productivity and their control.

Prerequisite:—Chemistry 354.

2 lects. per wk., 2nd term. *Mr. Bubar*

442. PROJECTS

Directed study on an approved problem, either in the breeding or production phase.

Equivalent of ½ lab. per wk., 2 terms—3rd and 4th years.

Professor Steppler and Staff

444a. STATISTICAL METHODS

Experimentation, analysis, and design in biological research.

Prerequisite:—Mathematics 331 or its equivalent. See also course Agronomy 60 in the Faculty of Graduate Studies and Research, of which this is a part.

2 labs. per wk., 1st term. *Professor Steppler*

446a. MISCELLANEOUS AGRONOMIC CROPS

A study of agronomic crops not discussed in Agronomy 331b or 432a, which are grown for the production of oil, fibre, sugar, and other products of economic importance.

Prerequisite:—Agronomy 345.

2 lects. per wk., 1st term. *Professor Klinck*

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DEPARTMENT OF ANIMAL HUSBANDRY

Professor — E. W. CRAMPTON

Associate Professor, Chairman of the Department — LIONEL H. HAMILTON

Assistant Professors — G. E. BRADFORD, J. E. MOXLEY

Lecturer — P. A. ANASTASSIADIS

330a. SWINE PRODUCTION

Care, feed, and management of swine. Special problems of bacon hog production. Swine experimentation and interpretation of results.

2 lects., 1 lab., per wk., 1st term. *Professor Bradford*

334b. DAIRY CATTLE PRODUCTION

The production of dairy cattle, with special reference to the problems of the dairy cattle industry; breeding, care, and management of dairy cattle; dairy cattle organizations.

2 lects., 1 lab., per wk., 2nd term. *Professor Moxley*

335b. LIVESTOCK JUDGING AND MANAGEMENT

An introductory course dealing with the principles and practice of livestock selection and management. For students other than specialists in Animal Husbandry.

3 labs. per wk., 2nd term. *Professors Moxley and Bradford*

338b. ANIMAL BREEDING

Genetics in relation to the breeding of farm animals.

Prerequisite:—Genetics 330a.

2 lects., 1 lab., per wk., 2nd term. *Professor Bradford*

441b. HORSES, SHEEP, AND BEEF CATTLE

A course covering the important features of the production of these classes of stock in Canada.

2 lects., 1 lab., per wk., 2nd term. *Professor Hamilton*

442a. PROJECTS

In special cases, permission may be obtained to substitute Nutrition 433a for this course.

3 labs. per wk., 1st term. *Staff*

443a. LIVESTOCK JUDGING AND MANAGEMENT

An advanced course in livestock selection and management. This course includes visits to various farms, breeding establishments, and livestock shows.

3 labs. per wk., 1st term. *Staff*

DEPARTMENT OF ANIMAL PATHOLOGY

Assistant Professor, Chairman of the Department — D. G. DALE

330b. ELEMENTARY PHYSIOLOGY

3 lects. per wk., 2nd term — *Professor Dale*

431a. DISEASE PREVENTION

General principles of disease prevention, elementary immunology, sanitation, and hygiene. Prerequisite for Animal Pathology 432b.

Prerequisite:—Animal Pathology 330b and Bacteriology 330b or its equivalent.

3 lects. per wk., 1st term. — *Staff*

432b. POULTRY DISEASES

Autopsy and laboratory work; discussion of the important poultry diseases.

Prerequisite:—Animal Pathology 431a.

2 labs. per wk., 2nd term. — *Staff*

434b. DISEASE PREVENTION

Specific problems in the prevention of diseases of animals caused by bacteria, viruses, internal parasites, external parasites, and nutritional deficiences. Prerequisite:—Animal Pathology 431a.

2 lects., 1 lab., per wk., 2nd term. — *Professor Dale*

DEPARTMENT OF AGRICULTURAL BACTERIOLOGY

Professor — A. C. BLACKWOOD

Associate Professor — R. H. WALLACE

Lecturer — *to be appointed*

330b. GENERAL MICROBIOLOGY

This course is a prerequisite to the courses listed below.

2 lects., 2 labs., per wk., 2nd term.

Text Book:—Frobisher, Fundamentals of Bacteriology.

333b. LABORATORY METHODS

1 lect., 3 labs., per wk., 2nd term — *Professor Wallace*

Text Book:—Manual of Methods for the Pure Culture Study of Bacteria.

432a. SOIL MICROBIOLOGY

2 lects., 2 labs., per wk., 1st term.

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434b. FOOD MICROBIOLOGY

2 lects., 2 labs., per wk., 2nd term.

435a. DAIRY BACTERIOLOGY

2 lects., 2 labs., per wk., 1st term.

436. PROJECTS

3 labs. per wk., 1st term; 6 labs. per wk., 2nd term. *Staff*

437. SEMINAR

1 hour per wk., 2 terms. *Staff*

438b. PHYSIOLOGY OF MICRO-ORGANISMS

1 lect., 3 labs., per wk., 2nd term. *Professor Wallace*

Text Book:—Oginsky and Umbreit, An Introduction to Bacterial Physiology.

BOTANY

110. INTRODUCTORY BOTANY

A study of the flowering plant as a living organism with fundamentals of structure, physiology, and reproduction, and an introduction to the general morphology of plants involving consideration of representative types of the several groups of the plant kingdom.

1st Yr.:—2 lects., 2 labs., per wk., 2 terms. *Professor Callen* (*Plant Pathology*)

330b. PLANT PHYSIOLOGY

2 lects., 2 labs., per wk., 2nd term.

Professor Pelletier (*Plant Pathology*)

331b. HISTOLOGY AND CYTOLOGY

A detailed study of cells, cell division, tissues and their development, etc.

2 lects., 1 lab., per wk., 2nd term.

334a. HISTOLOGICAL TECHNIQUE

The preparation for the microscope of permanent stained mounts of at least twelve separate items. See Plant Pathology 330b.

1 lect., 2 labs., per wk., 1st term.

432a. PLANT MORPHOLOGY

1 lect., 2 labs., per wk., 1st term.

Professor Callen (*Plant Pathology*)

433. SYSTEMATIC BOTANY

2 labs. per wk., 1st term; 1 lab. per wk., 2nd term.

Professor Callen (*Plant Pathology*)

DEPARTMENT OF AGRICULTURAL CHEMISTRY

Professors	R. H. COMMON W. A. DELONG H. G. DION
Associate Professor	B. E. BAKER
Assistant Professor	P. A. ANASTASSIADIS
Lecturer	G. O. HENNEBERRY

110. INORGANIC CHEMISTRY

1st Yr.:—3 lects., 2 labs., per wk., 2 terms. *Mr. Henneberry*

Text Book:—Cragg and Graham, An Introduction to the Principles of Chemistry (Clarke, Irwin).

220. ORGANIC CHEMISTRY

Fundamental concepts of organic chemistry; properties and structure of related aliphatic, aromatic and heterocyclic compounds. Laboratory work includes preparation and examination of typical organic compounds.

2nd Yr.:—3 lects., 2 labs., per wk., 2 terms. *Professor Baker*

Text Book:—Wertheim, Textbook of Organic Chemistry (Blakiston).

331a. ORGANIC CHEMISTRY

A laboratory course designed to provide experience in laboratory methods and techniques.

1 lect., 2 labs., per wk., 1st term. *Professor Baker*

332a. GENERAL BIOCHEMISTRY

Carbohydrates; lipids; amino-acids and proteins; properties, nature, and classification of enzymes.

2 lects., 2 labs., per wk., 1st term. *Professor Common*

Text Book:—Downes, The Chemistry of Living Cells (Harper & Bros.).

333a. QUANTITATIVE ANALYTICAL CHEMISTRY

Application of the laws of chemical equilibration to ionization, pH., precipitations and oxidation-reduction reactions; problems in quantitative inorganic analysis. Laboratory work includes instruction in the use and care of the analytical balance; techniques of gravimetric, volumetric and colorimetric inorganic analysis; preparation of standard solutions; acidimetry and alkimetry; determinations of selected cations and anions by standard procedures.

2 lects., 4 labs., per wk., 1st term. *Professor DeLong*

Text Book:—Kolthoff and Sandell, Textbook of Quantitative Inorganic Analysis.

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334b. QUALITATIVE ANALYTICAL CHEMISTRY

Valence, theories of acids and bases, ionization, theory of co-ordination compounds and complex ions, oxidation-reduction reactions, the law of mass action in relation to solubility and precipitation. Laboratory work is devoted to the systematic identification of the more common cations and anions by semi-micro techniques.

2 lects., 4 labs., per wk., 2nd term. *Mr. Henneberry*

Text Book:—Gilreath, Qualitative Analysis (McGraw-Hill).

335a. QUANTITATIVE ANALYTICAL CHEMISTRY

As in Course 333a, with abridged laboratory.

2 lects., 3 labs., per wk., 1st term. *Professor DeLong*

336b. QUALITATIVE ANALYTICAL CHEMISTRY

As in Course 334b, with abridged laboratory.

2 lects., 3 labs., per wk., 2nd term. *Mr. Henneberry*

347b. PHYSIOLOGICAL CHEMISTRY

Prerequisites:—Chemistry 332a and Physics 333a. Alimentary digestion and absorption of nutrients; composition and properties of blood; gaseous exchange and acid base equilibrium; metabolism of nutrients and tissue respiration; urinary and fecal excretion; hormones.

Laboratory work parallels the lecture course and includes blood and urine analysis.

2 lects., 2 labs., per wk., 2nd term. *Professor Common*

Text Book:—Downes, The Chemistry of Living Cells (Harper & Bros.).

354. INTRODUCTORY SOIL SCIENCE

Geology as related to soil formation; the characteristics, physical properties, and genesis of the major soil groups.

2 lects., 2 labs., per wk., 2 terms. *Professors DeLong and Dion*

Text Book:—Lyon, Buckman, and Brady, The Nature and Properties of Soils, 5th ed. (Macmilian).

439. PHYSICAL CHEMISTRY

An introduction to kinetic theory; the properties of solids and liquids; the phase rule; colligative properties of dilute solutions; thermochemistry and chemical kinetics.

1 lect., 2 labs., per wk., 2 terms. *Professor Baker*

Text Book:—Glasstone, Elements of Physical Chemistry (Van Nostrand).

440. ASSIGNED PROJECTS

3 labs. per wk., 2 terms. *Staff*

441. SEMINAR

1 lect. per wk., 2 terms. *Staff*

448b. PLANT BIOCHEMISTRY

Prerequisites:—Chemistry 332a and Physics 333a. Chemistry of plant nutrition with particular reference to the inorganic elements and interrelations in the metabolism of inorganic and organic substances.

2 lects., 2 labs., per wk., 2nd term. *Professor DeLong*

450a. TEXTILE CHEMISTRY

See page 4603.

451a. CHEMISTRY OF FOODS AND FEEDING STUFFS

Principles of analysis, including a more detailed treatment of sugars, starches, oils, and fats; analytical chemistry of milk and milk products.

2 lects., 2 labs., per wk., 1st term. *Professors Common and Anastassiadis*

452b. ADVANCED FOOD ANALYSIS

A specialized course including the determination of minor elements, amino acids, and vitamins; control analysis in food processing.

2 lects., 2 labs., per wk., 2nd term.

Professors Common and Anastassiadis

DAIRYING

430a. THE DAIRY INDUSTRY

Its importance in Canadian agriculture, the relative importance of the various products, and an analysis of the trade. The farm dairy and its equipment. The composition, quality, value, care, and sale of milk and cream. Quality and defects in butter, cheese, and other dairy products. Instruction in testing, separating, buttermaking, and cheesemaking.

2 lects., 2 labs., per wk., 1st term. *Professor Anastassiadis*

DEPARTMENT OF AGRICULTURAL ECONOMICS

Professor D. L. MACFARLANE

Associate Professor W. E. HAVILAND

220b. PRINCIPLES OF ECONOMICS

The anatomy of the Canadian economy, especially the agricultural, household, and governmental segments. The business firm and the

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industry; price and output. Money; the Canadian banking system; national income and employment. The distribution of wealth and income. International trade.

2nd Yr.:—3 lects. per wk., 2nd term. *Professor MacFarlane*

330b. ECONOMICS OF MARKETING

Nature and importance of marketing. Markets and market prices. Selling and buying. Marketing margins and efficiency. Co-operation and co-operatives. Federal and provincial marketing jurisdiction and policies. The marketing of Canada's principal farm products. Marketing study tours.

3 lects. per wk., 2nd term. *Professor Haviland*

331b. ECONOMICS OF AGRICULTURE

The Canadian farm industry; the regionalism of production; the distribution of the labor force and of financial returns in Canadian agriculture; farm efficiency. The relation between agriculture and other Canadian industries. The economic background of farm policy. The international trade position of Canadian agriculture.

3 lects. per wk., 2nd term. *Professor MacFarlane*

332a. FARM ACCOUNTING AND FARM MANAGEMENT

A system of single entry farm accounts involving inventories, cash receipts, and expenses; a system of production records; the analysis of farm account and production records as a means of improving efficiency of production; farm income tax. The economics of farm production and farm management decisions. A farm visit followed by a detailed analysis of the business of this farm and of three other farms involving the preparation of farm plans and budgets covering present and proposed farm management schemes.

3 lects. per wk., 1st term. *Professor MacFarlane*

333. ECONOMIC ANALYSIS

An intermediate course in economic theory analyzing the forces which determine the levels of prices, production, consumption, income, and employment.

3 lects. per wk., 2 terms. *Professor Haviland*

434c. PROJECT

The equivalent of 3 labs. per wk., 1 term. *Staff*

DEPARTMENT OF ENGLISH

Associate Professor, Chairman of the Department	H. R. C. Avison
Professor of Education	C. Wayne Hall
Assistant Professor	D. W. Cole
Sessional Lecturer	Margaret H. Dubreuil

114. ENGLISH COMPOSITION

Instruction and practice in the elements of good speech and good writing: 1 lecture period per week, conference hours and written themes to the equivalent of 1 lab. period per week 2 terms. A student failing in the year's work will be required to repeat this course until the necessary standard has been attained.

1st Yr.:—1 lect., 1 lab., per wk., 2 terms.

Professors Avison, Cole, and Mrs. Dubreuil

116. ENGLISH LITERATURE

A study of the forms of literature—mainly poetry, fiction, drama, from Anglo-Saxon times to about 1880—with special attention to those factors which condition literary taste and judgment. A schedule of topics and readings will be available before the course begins.

1st Yr.—2 lects. per wk., 2 terms. *Professor Cole*

225. MODERN LITERATURE

An extension of Course 116, with topics and readings drawn from the work of British, Canadian, and American writers in the period from 1880 to the present. This course may be elected by Third or Fourth year students.

2nd Yr.:—2 lects. per wk., 2 terms *Professor Hall*

226. SPEAKING AND WRITING

An extension of Course 14 for students who require or desire further practice in oral and written expression. Laboratory periods may be substituted for lectures. This course may be elected by Third or Fourth year students: it is required for Extension Methods 330, but should be taken, if possible, in the Second year.

2nd Yr.:—2 lects. per wk., 1st term; 1 lect., 1 lab., per wk., 2nd term.

Professors Avison, Cole, and Mrs. Dubreuil

All Second year degree course students must take either English 225 or English 226. The prerequisite to these courses is successful completion of Senior Matriculation English Literature and Composition, or English 114 and 116 at Macdonald College.

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331. THE LITERATURE OF RURAL LIFE

A study of Canadian and American regional literature. The schedule of topics and readings, covering the period from pioneer settlements to the present day, will emphasize the large place in our literature held by prose and poetry which is inspired by the land and the people who live on the land. Not given for fewer than 5 students.

1 lect. per wk., 1st term; 2 lects. per wk., 2nd term. *Professor Avison*

332. MODERN DRAMA

A reading course in modern English and American drama with special attention to trends and developments since 1900. Not given for fewer than 5 students.

2 lects. per wk., 1st term; 1 lect. per wk., 2nd term. *Professor Hall*

EXTENSION METHODS

330. EXTENSION METHODS

Study group technique; extension methods in agriculture and household science; rural sociology.

Laboratory work comprises participation in debates, conduct of public meetings and similar activities, and the operation of the Rural Problems Club, which meets weekly from November 1st to March 31st. Membership in the Club is open to all students in Agriculture, Household Science, and the School for Teachers. Students who elect this course will also be required to take English 226, unless this course was taken in the Second year.

1 lect., 1 lab., per wk., 2 terms. *Professor Avison and Committee*

DEPARTMENT OF ENTOMOLOGY

Professors — *To be appointed*; E. MELVILLE DUPORTE (*Post-retirement*)

Associate Professor — F. O. MORRISON

Assistant Professors — R. S. BIGELOW; J. E. MCFARLANE

330. INSECT MORPHOLOGY

2 lects., 2 labs., per wk., 2 terms. *Professors DuPorte and Bigelow*

332b. ENTOLOMOGICAL TECHNIQUE

Prerequisite:—Zoology 332a.

2 labs. per wk., 2nd term. *Professor McFarlane*

433. ECONOMIC ENTOMOLOGY

The principles and practice of Applied Entomology from a professional standpoint, including a survey of the Class *Hexapoda* with special reference to biological and economic aspects. A representative collection of economic insects including at least 50 adults, 20 larvae, and five complete life history sets will be required of all students taking this course.

2 lects., 2 labs., per wk., 2 terms. *Professor Morrison*

434b. GENERAL AND ECONOMIC ENTOMOLOGY

A more elementary course similar to the foregoing, but suited to the general student. A collection of 25 adult insects, 10 larvae, and one complete life history set, representative of common economic insects, will be required of each student taking the course.

2 lects., 2 labs., per wk., 2nd term. *Professor Morrison*

435. SYSTEMATIC ENTOMOLOGY

The classification of the principal groups of insects. Each student will bring to the class at least 50 representatives of the main orders of insects which he has collected, mounted and labelled according to the instructions given in Course 332b. He will choose a special group for more detailed study which may be included in the above collection. Prerequisite: Entomology 330.

2 lects., 2 labs., per wk., 2 terms. *Professor Bigelow*

436b. INSECT ECOLOGY

The influence of the environment on the development, activities, distribution, and abundance of insects.

2 lects. per wk., 2nd term. Given in 1958-59.

437. SEMINAR

Presentation and discussion of reports on: (1) Assigned topics; (2) Recent work in Entomology and Zoology; (3) Original investigation. Required in both Third and Fourth years.

1 lab. per wk., 2 terms. *Staff*

438. PROJECTS

One or more problems entailing private investigation will be allotted to each student at the beginning of his Third year. The work done should be equivalent to

2 labs. per wk., 2 terms. *Staff*

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FRENCH

100. French is used exclusively by lecturer and students in this course.

(a) *Travail oral:* The aim of this section of the course is to increase fluency, accuracy, and precision in speaking French. Assignments vary according to the interests and capabilities of the students.

(b) *Explication de textes:* A study, gauged to the achievement level of the students, of a novel of French Canada. The primary object is to master the story and to appreciate the atmosphere of French Canada as portrayed in the novel. Subsequently a detailed analysis is undertaken.

(c) *Cours de civilisation:* A survey course of French history; biographical and literary aspects are stressed.

Texts to be announced.

3 lects, per wk., 2 terms. Elective.

Professor Hawkins (Institute of Education)

300. Aim: practice in French for students who expect to work in Quebec Province; preparatory work for postgraduate students who intend to meet second language requirements in French. Emphasis will depend on needs of students enrolled. *Prerequisite:* Quebec High School Leaving French or equivalent. *Content:* writing, reading and oral practice.

3 lects. per wk., 2 terms. Elective.

Professor Hawkins (Institute of Education)

DEPARTMENT OF GENETICS

Professor	J. W. Boyes
Associate Professor	R. I. Brawn
Assistant Professors	G. E. Bradford
	W. F. Grant
	G. I. Paul
Research Associate	B. Povilaitis

330a. ELEMENTARY GENETICS

The modern concept of inheritance, applicable to both plants and animals, including reference to human inheritance.

3 lects., 2 labs., per wk., 1st term. *Professor Brawn*

Note: Genetics 62a, Cytology, Genetics 62b, Cytogenetics, and Genetics 64b, Statistical Methods in Genetics, listed in the announcement of the Faculty of Graduate Studies and Research, are offered at Macdonald College and may be elected by senior undergraduate students by permission of the instructor concerned.

HISTORY

100. European civilization in medieval and modern periods.
3 lects. per wk., 2 terms. Elective.
Professor Zagorin (Faculty of Arts and Science)

DEPARTMENT OF HORTICULTURE

Associate Professors H. R. MURRAY
C. D. TAPER

Assistant Professor JEAN DAVID

Lecturer P. M. HARNEY

338a. POMOLOGY (ORCHARD FRUITS)
The fundamentals of orchard fruit propagation, production, and marketing, with visits to orchards, markets, and cold storage establishments when possible.
2 lects., 2 labs., per wk., 1st term. *Professor Taper*

339b. POMOLOGY (SMALL FRUITS)
The fundamentals of small fruit propagation, production, and marketing, with visits to producing areas and marketing establishments when possible.
2 lects., 2 labs., per wk., 2nd term. *Professor Taper*

343a. HORTICULTURAL CROPS
Tree and bush fruits; fruit and vegetable processing.
2 lects., 1 lab. per wk., 1st term. *Professor Murray and Staff*

344b. HORTICULTURAL CROPS
Potatoes as a cash crop; canning and other special crops. The farm garden; landscaping the farm home.
2 lects., 1 lab. per wk., 2nd term. *Professor Murray and Staff*

431. VEGETABLE CROPS
The principles of vegetable growing including economic importance, geography, types and varieties, cultural requirements, harvesting, grading, marketing, and storage, as applied to the important crop plants.
(*Given in 1958-59.*)
2 lects., 2 labs., per wk., 2 terms. *Professor Murray*

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432a. LANDSCAPE ARCHITECTURE

Description, characteristics, and identification of ornamental plants, nursery practices and care of plant material. A brief history of gardens and architecture. Landscape design, plans, sketches, drafting, and construction specifications, as applied to rural and urban homes, estates, parks and playgrounds, etc.

Prerequisite:—First term work of Agricultural Engineering 439.

2 lects., 2 labs., per wk., 1st term. *Miss Harney*

435b. FLORICULTURE

An introductory course in which is discussed the history, development, propagation, and culture of flowers both out of doors and under glass. Floral arrangements and design are also considered. Trips to greenhouse establishments are made where possible.

2 lects., 2 labs., per wk., 2nd term. *Miss Harney*

436b. PLANT BREEDING

A study of the principles of genetics as applied to the breeding and improvement of horticultural crop plants. The development of breeding methods for different types of plants will be given special consideration. Lectures will be supplemented by practice periods in the greenhouse.

Prerequisite:—Genetics 330a.

2 lects., 1 lab., per wk., 2nd term. *Professors Murray and Taper*

437. SEMINAR

Presentation and discussion of reports on assigned topics, recent work and developments in horticulture and reports on the original investigations of the students and staff.

1 period per wk., 2 terms. *Professor Murray and Staff*

442a. FRUIT AND VEGETABLE PRESERVATION

The principles of fruit and vegetable preservation with particular attention to cold storage, canning, dehydration, and freezing.

2 lects, 1 lab., per wk., 1st term. *Professor David*

MATHEMATICS

111. PLANE TRIGONOMETRY

Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformations of sums and products, logarithmic solutions of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

1st Yr.:—2 lects. per wk., 1st term: 1 lect. per wk., 2nd term.

Professor Henry (Institute of Education)

112. ALGEBRA

Variation, progressions, with applications to compound interest, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

1st Yr.:—1 lect. per wk., 1st term: 2 lects. per wk., 2nd term.

Professor Henry (Institute of Education)

220. CALCULUS

Analytical geometry, differential and integral calculus.

2nd Yr.:—3 lects. per wk., 2 terms. *Professor Rowles (Physics)*

330. ELEMENTARY DIFFERENTIAL EQUATIONS

An introduction to differential equations with selected applications in physical, chemical, and biological science.

1 lect. per wk., 2 terms. *Professor Oliver (Physics)*

331. ELEMENTARY STATISTICS

An introduction to statistics including graphs, histograms, means, standard deviation, variance, normal frequency curve, probability, fitting curves to experimental data, correlation, standard error, tests of significance, etc.

1 lect., 1 lab. per wk., 1st term; 1 lab. per wk., 2nd term. *Mr. Fraser*

DEPARTMENT OF NUTRITION

Professor	E. W. CRAMPTON
Associate Professor	L. E. LLOYD
Assistant Professor	F. A. FARMER

430. FUNDAMENTALS OF NUTRITION

Lectures and library assignments deal with the nutrients and their metabolism. In the second term, as an alternate laboratory, students, with permission, may elect to participate in one or more biological projects in which rats, puppies, guinea pigs and/or the students themselves are the experimental subjects. These projects will be scheduled by arrangement but will normally be completed within a three week period.

2 lects. 1 lab. per wk., 2 terms. *Professors Crampton, Lloyd and Farmer.*

432b. APPLIED ANIMAL NUTRITION

A critical study of livestock feeding standards; a classification of feedstuffs based on their functions in rations and a consideration of their characteristics which determine their use and limit the extent of their substitution; translation of feeding standards to balanced meal mixtures; feeding guides, feed legislation.

2 lects. per wk., 2nd term. *Professor Crampton*

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433c. PROJECT

Equivalent of 3 labs. per wk., 1 term. *Staff*

PARASITOLOGY

434. SEMINAR

1 lab. per wk., 2 terms. *Professors DuPorte (Entomology) and Cameron (Institute of Parasitology)*

Students will attend the combined Entomology-Parasitology Seminar. Required in both Third and Fourth years.

435b. PROJECTS

A problem may be selected in Protozoology, Medical Entomology, or Helminthology. The object of the problem is to enable the student:—(1) To do more intensive work in some selected field; (2) To obtain an introduction to the methods of scientific research.

3 labs. per wk., 2nd term. *Professors Cameron (Institute of Parasitology), and DuPorte (Entomology).*

436a. PROTOZOOLOGY

A morphological, biological, and systematic study of protozoa with special reference to the parasites of domestic animals. Protozoological technique.

(Given in 1958-59)

2 lects., 2 labs., per wk., 1st term. *Professor DuPorte (Entomology)*

437b. MEDICAL ENTOMOLOGY

A systematic and biological study of insects concerned in the causation of disease in man and domestic animals. *Prerequisite:*—Entomology 330.

(Given in 1958-59)

2 lects., 2 labs., per wk., 2nd term. *Professor DuPorte (Entomology)*

438b. HELMINTHOLOGY

A morphological, biological, and systematic study of the helminths with special reference to the parasites of domestic animals. Helminthological technique.

(Given in 1957-58)

2 lects., 4 labs., per wk., 2nd term.

Professor Cameron (Institute of Parasitology)

DEPARTMENT OF AGRICULTURAL PHYSICS

Professor	WILLIAM ROWLES
Associate Professor	W. F. OLIVER
Lecturer	D. M. FRASER

112. GENERAL PHYSICS

An elementary course dealing with the subject chiefly from the experimental side, with selected problems based on the fundamental principles. The course is designed to familiarize the students with the more important laws of physics and to furnish the necessary basis for later work.

1st Yr.:—3 lects., 1 lab., per wk., 2 terms. *Professor Rowles*

222. GENERAL PHYSICS

A continuation course which covers the same ground as Physics 112, but with more intensive treatment. Certain topics will receive special emphasis and additional phases of the subject will be considered.

2nd Yr.:—3 lects., 1 lab., per wk., 2 terms. *Professor Oliver*

333a. BIOPHYSICS

(Prerequisite to Chemistry 347b and 448b.) A study of the gas laws, osmosis, surface phenomena, electrolytic dissociation, pH, colloidal state, use of electron microscope, X-rays and radio-active rays in biology, etc.

2 lects., 2 labs., per wk., 1st term. *Professor Rowles and Mr. Fraser*

340a. BIOPHYSICS

An abridged course covering selected parts of Physics 333a.

1 lect., 1 lab., per wk., 1st term. *Professor Rowles and Mr. Fraser*

432b. METEOROLOGY

A study of the factors which condition climate and weather, etc.

1 lect. per wk., 2nd term. *Professor Rowles*

436a. SOIL PHYSICS

Soil texture as determined by mechanical analysis, soil moisture and its movement, soil constants and their measurement, physical properties of colloids and their effects on soil behaviour, soil structure.

1 lect., 1 lab., per wk., 1st term. *Professor Rowles*

438. MOLECULAR AND ATOMIC PHYSICS

A discussion of kinetic theory including Maxwell's distribution law, the laws of thermodynamics, atomic structure, charge on the electron, isotopes, circular orbit theory for hydrogen, vacuum tubes, X-rays and crystal structure, radioactivity, etc. A portion of the time is devoted to laboratory work.

2 lects. per wk., 2 terms. *Professor Oliver*

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DEPARTMENT OF PLANT PATHOLOGY

Professor	JOHN G. COULSON
Assistant Professors	E. O. CALLEN
	R. H. ESTEY
	R. L. PELLETIER
Research Associate	N. COLOTELO

330b. TECHNIQUE

The preparation and standardization of media. Inoculation methods, etc. Photomicrography and the optical equipment necessary.

Students taking the Plant Pathology Option will be required to take that part of course Zoology 332a dealing with illustrations. Graduate students may take this work without credit.

1 lect., 2 labs., per wk., 2nd term.

331a. DISEASES OF PLANTS

A study of the common diseases and their control. Use of spray calendars. Preparation of fungicides, etc.

2 lects., 2 labs., per wk., 1st term. *Professor Coulson*

333a. MYCOLOGY

A study of fungi as concerning taxonomy, morphology, sexuality, etc.

2 lects., 2 labs., per wk., 1st term. *Professor Callen*

336. PLANT PATHOLOGY

Detailed studies of plant diseases; distribution, economic importance, symptoms, cause, and control.

Basidiomycetous, fungi imperfecti, bacterial, and virus diseases.

2 lects., 2 labs., per wk., 2 terms. *Professor Coulson*

432b. PLANT PATHOLOGY

Detailed studies of plant diseases; distribution, economic importance, symptoms, cause, and control.

Myxomycetous, phycomycetous, ascomycetous, and non-parasitic diseases.

2 lects., 2 labs., per wk., 2nd term. *Professor Coulson*

434. PROJECTS

One or more problems entailing private investigation will be allotted each student.

Minimum of 2 labs. per wk., 2 terms. *Staff*

435. SEMINAR

A course entailing reading, discussion, appreciation, and criticism of research articles, monographs, etc., in the field of General Botany, Physiology, Cytology, Histology, Morphology, Ecology, Taxonomy, Genetics, Mycology, Pathology. Attention will be more especially directed to such articles as have application in Plant Pathology or Mycology.

1 period per wk., 2 terms. *Staff*

DEPARTMENT OF POULTRY HUSBANDRY

Professor W. A. MAW

Associate Professor N. NIKOLAICZUK

333a. GENERAL POULTRY HUSBANDRY

The general principles and practice of poultry production and marketing.

3 lects., 1 lab., per wk., 1st term. *Professor Nikolaiczuk*

431a. HISTORY OF BREEDS AND JUDGING

The origin, domestication, and development of the various breeds of chickens, turkeys, ducks, and geese. Advanced practice in judging on the basis of type and colour standards.

(*Given in 1957-58*)

2 labs. per wk., 1st term. *Professor Maw*

434b. BREEDING PRINCIPLES

The fundamental principles underlying poultry breeding.

Prerequisites:—Genetics 330a; Poultry Husbandry 431a and 333a.

(*Given in 1957-58*)

2 lects., 1 lab., per wk., 2nd term. *Professor Maw*

435. POULTRY FARM MANAGEMENT

Poultry farming as a business; size of business, economic aspects of capital and labour involved; farm layout and buildings; arrangement; equipment, inventories, cost accounts, and other records.

Prerequisite:—Poultry Husbandry 333a.

1 lect., 1 lab., per wk., 2 terms. *Professor Maw*

436. RESEARCH

A study of method in conducting experiments and analysis of data.

Prerequisite:—Poultry Husbandry 333a.

2 labs. per wk., 2 terms. *Professor Nikolaiczuk*

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437. ASSIGNED PROJECTS

3rd Yr.:—2 labs. per wk., 2nd term; 4th Yr.:—3 labs. per wk., 2 terms

Professors Maw and Nikolaiczuk

438b. POULTRY NUTRITION

A study of the composition of feeds, balanced rations, and feeding practice as applied to the production of poultry.

Prerequisite:—Poultry Husbandry 333a.

(*Given in 1957-58*)

2 lects., 1 lab., per wk., 2nd term. *Professor Nikolaiczuk*

SOCIOLOGY

340c. INTRODUCTION TO SOCIOLOGY (The Community)

An examination of the social patterns of our society, with emphasis on group relationships.

3 lects. per wk., 1 term. *Mrs. MacFarlane*

DEPARTMENT OF WOODLOT MANAGEMENT

Lecturer A. R. C. JONES

330a. WOODLOT MANAGEMENT

Principal trees of Eastern Canada; classification of forest regions, types and stands; use of chain, compass and sample plots in forest inventories; volume measurements of trees, logs and woodlot products; silvicultural cutting methods to improve and perpetuate the woodlot; study of growth; calculation of allowable cut for sustained yield; plantation techniques and improvements; woodlot protection; demonstration of mechanical cutting tools; management plans and records; marketing possibilities.

1 lect., 1 lab., per wk., 1st term. *Mr. Jones*

ZOOLOGY

220. GENERAL ZOOLOGY

An introduction to animal structure, physiology, and classification. Representatives of the chief phyla are studied and used to introduce some of the general principles of Zoology.

2nd Yr.:—2 lects., 2 labs., per wk., 2 terms.

332a. HISTOLOGICAL TECHNIQUE

The preparation of histological slides and the technique of making scientific drawings.

Students taking the Entomology Option will be required to take that part of the course Plant Pathology 330b which deals with photography and the use of the microscope. Graduate students may take this work without credit.

2 labs. per wk., 1st term. *Professor McFarlane (Entomology)*

431. COMPARATIVE VERTEBRATE ANATOMY

(*Given in 1957-58*)

2 lects., 2 labs., per wk., 2 terms.

EXAMINATIONS

B.Sc. (AGR.) AND B.Sc. (H.Ec.) COURSES

All students are required to give satisfactory evidence of mastery of the material of lecture and laboratory. First and Second year examinations are held at the end of the first term in all courses. In all years examinations are held at the conclusion of each course, at which time the examiner will pass in to the Registrar a mark giving the final standing of each student in all the work of the course.

First year students who obtain an average of less than 40 per cent in the first term examinations are not permitted to continue with the work of the second term.

Examination in any subject may be refused because of absence without accepted excuse from one or more classes in the subject. See page 4524.

Students who are allowed to repeat a year do so on probation. Students whose work or conduct during the year proves unsatisfactory may also be placed on probation involving loss of certain privileges. The type of probation will vary with individual cases.

PASS MARK AND CLASSES

The pass mark in all examinations is 50 per cent. First Class standing is 80 per cent and over, Second Class standing is 65 to 79 per cent, Pass standing is 50 to 64 per cent.

ADVANCEMENT FROM YEAR TO YEAR

In the First and Second years, any student whose final mark is less than 50%, or who fails in courses of the year's work to an aggregate value of more than 450 marks will be required to repeat the year. Any student

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who fails in courses of the year's work to an aggregate value of 450 marks or less and whose average is at least 50%, may write supplemental examinations in all failed courses the following September. However, a student who fails in English 114 (Composition) will be required to repeat the course until the necessary standard has been attained.

In all years, standings of all students as shown by the results of first term examinations are critically reviewed by Faculty, which may require the withdrawal of any student whose average mark is less than 50%.

No student may enter the Second year carrying a condition in more than one subject of First year work, and no student may enter the Third year carrying a condition in more than one subject of Second year work.

No student may enter the Third year with any subject outstanding from his First year, and no student may enter the Fourth year with any subject outstanding from his Second year.

Any student who, after the final spring examinations of the Third year, has failed to obtain an average of at least 50 per cent based on all the courses of his Third year, will be required to repeat the year. No student will be admitted to the Fourth year of the B.Sc.(Agr.) course who has not passed in Third year work equivalent to at least five full courses (30 units), or to the Fourth year of the B.Sc.(H.Ec.) courses who has not passed in Third year courses having an aggregate value of at least 750 marks.

A student who is allowed to repeat a year may be exempted from attending lectures and passing examinations in one or more subjects in which he has already passed and obtained at least 60 per cent, and may be required to take one or more subjects of the following year in his course. The choice of subjects must involve no conflict of hours in the timetable.

If a student fails in a course which he has taken with a more advanced class he must repeat the course when he enters the year in which that subject is regularly taught.

PASS AND HONOUR STANDING

HONOUR STANDING:—Students who have obtained an average of at least 60 per cent in the work of the first two years, and who obtain an average of 80 per cent or over, based on all the courses of their Third and Fourth years, are granted First Class Honours on graduation; those who obtain an average of from 65 to 79 per cent, based on all the courses of their Third and Fourth years, are granted Second Class Honours. Students who have obtained an average of less than 60 per cent in the work of the first two years are not eligible for Honours.

PASS STANDING:—Students who obtain an average of not less than 50 per cent, based on all the courses of their Third and Fourth years, are granted Pass Standing.

SUPPLEMENTAL EXAMINATIONS

Regular supplemental examinations are held in September before the beginning of the session, and at the time of the regular examinations in January and March. Failure to pass a supplemental examination means that the course must be repeated, or such portion of it as the instructor may direct. In the case of Fourth year students only, special examinations may be provided earlier in September, so that the results may be known in time to recommend successful candidates for the fall Convocation.

Except in very exceptional cases, each of which must be submitted to the Faculty for approval, only one supplemental examination will be allowed in any course; but a student who has been prevented by illness or some other unavoidable circumstance from writing a supplemental examination at the regular time will be allowed to write a special supplemental examination at a later date. In no other cases than those mentioned will special supplemental examinations be granted.

Every candidate for a supplemental examination is required to fill out an application form for such examination and to return it with the necessary fee ($2.00 per paper) at least three weeks before the date set for the examinations. Application forms may be obtained from the Registrar.

No student writing a supplemental examination in a subject will be granted marks higher than the pass mark, 50 per cent.

AGRICULTURE SPECIALIST TEACHER'S CERTIFICATE

Holders of the B.Sc.(Agr.), in the General Agriculture, Agronomy, Animal Husbandry, Poultry Husbandry, Horticulture or Agriculture Engineering options may enroll for a year of postgraduate study under the direction of the Institute of Education to qualify for the Agriculture Specialist Teacher's Certificate granted by the University. Such a training will complete the requirements for the High School Diploma of the Province of Quebec and will include special training and teaching practice relative to the Agricultural Sciences.

There are openings for qualified teachers trained in agricultural science in the High Schools of Quebec and other provinces. As well as teaching agriculture, many appointments will require the teaching of other subjects including general specialized science, shop work and farm mechanics. Consequently candidates for the Specialist Teacher's Certificate receive

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training in general teaching as well as in their special subject areas. In addition to the academic and professional courses offered, an excellent program of supervised practice teaching gives candidates the opportunity of becoming familiar with the work of the schools. Candidates should have an interest in agriculture, an appreciation of rural life, some practical experience in farming, and a genuine interest in working with high school children.

The charge for the tuition is $172.00, and other charges for room and board and for student activities are the same as for students in the Institute of Education. Application for admission should be sent to the Registrar, Macdonald College, Que.

CURRICULUM

ENTRANCE REQUIREMENT:—B.Sc.(Agr.), in the General Agriculture, Agronomy, Animal Husbandry, Poultry Husbandry, Horticulture, or Agriculture Engineering options.

COURSES IN THE INSTITUTE OF EDUCATION

Division One — English 225—Modern Literature (if not completed during the B.Sc.(Agr.) course), terminal courses in English and French.

Division Two — Education 100, Education 200—History of Education in Western Society, Education 401G—Graduate Seminar.

Division Three — Education 110—Method of instruction, Education 210—The Child at School.

Division Four — Education 120—General Teaching Practice.

GRADUATE COURSES

Graduate work, under the Faculty of Graduate Studies and Research, McGill University, Montreal, may be taken at Macdonald College, in Agronomy, Bacteriology, Chemistry, Entomology, Horticulture, Nutrition (Animal, Human), Parasitology, Poultry Husbandry (Nutrition or Breeding and Genetics), and Plant Pathology. The advanced courses of study offered lead to the degrees of Master of Science and Doctor of Philosophy.

Graduates who have completed three full courses or their equivalent in the Department of Economics at Macdonald College and who, in addition, have completed at least two full courses in the Department of Economics and Political Science or their equivalent with at least second class honours, may register in the Faculty of Graduate Studies and Research to proceed toward the degree of Master of Arts.

A number of scholarships and student assistantships are available.

The Faculty of Graduate Studies and Research issues an Announcement giving full information regarding graduate courses, and scholarships, theses, registration, etc., in connection therewith, which will be sent on application to the Registrar, Macdonald College, to the Dean of the Faculty of Graduate Studies and Research, McGill University, Montreal or to the Dean of the Faculty of Agriculture, Macdonald College, Que.

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Diploma Course

This is a two-year course of five months' duration in each year commencing about November 1st, and finishing about March 31st. It affords a special opportunity of spending one or two winter seasons in studying Agriculture, and the time is selected with a view to interfering as little as possible with farm operations. It is intensely practical in character and is designed with the following objects in mind:—To give the largest amount of information and training in practical agriculture in the shortest possible time; to equip the student for solving his future problems; to awaken him to the many opportunities on the farm; to give him an inspiration in his agricultural work; and to enable him to fill a more useful place in rural citizenship.

The work of the first year is taken by all students in common; in the second year a student may choose subjects that have to do either with livestock farming or fruit farming. A diploma is granted to each student who completes the two years' work successfully.

DIPLOMA COURSE ENTRANCE

1. For General Requirements, see page 4531.

2. All candidates for admission to the Diploma Course must have passed their sixteenth birthday, must be able to read and write the English language acceptably, be proficient in the use of arithmetic, and demonstrate a practical knowledge of farm operations.

SYLLABUS

Diploma Course

	Course Numbers	Unit Value	Periods per week		Term Given
			Lects.	Labs.	
FIRST YEAR					
Agricultural Engineering:—					
Farm Machinery	1a	3	2	1	First
Farm Construction	2b	3	1	2	Second
Agriculture	1	2	1	..	Both
Agronomy:					
Soils and Soil Management	1a	3	3	..	First
Hay and Pasture Crops	3b	3	2	1	Second
Corn and Root Crops	5b	3	3	..	Second
Animal Husbandry	1	8	2	2	Both
Bacteriology	1b	2	1	1	Second
Botany	1a	3	2	1	First
Chemistry	1b	3	2	1	Second
English	2	6	3	..	Both
Entomology	3a	3	2	1	First
Farm Forestry	1a	3	1	2	First
Horticulture	4	4	1	1	Both
Mathematics	1	4	1	1	Both
Poultry Husbandry	1	6	2	1	Both
SECOND YEAR Livestock Farming Group					
Agricultural Engineering:—					
Land Drainage and Farm Sanitation	6a	4	2	2	First
Farm Shopwork	7b	3	1	2	Second
Agronomy:—					
Crop Management	7b	3	2	1	Second
Grain Crops	9a	3	2	1	First
Animal Husbandry:—					
Farm Live Stock	6	8	2	2	Both
Live Stock Breeding	7b	2	2	..	Second
Animal Nursing	6b	3	2	1	Second
Dairying	6b	4	2	2	Second
Economics:—					
Economic Problems	7a	3	3	..	First
Farm Accounts and Management	8a	4	3	1	First
English	7	4	1	1	Both
Nutrition	6a	2	2	..	First
Physics	6a	3	1	2	First
Poultry Husbandry	6b	3	2	1	Second
Project	6	4	..	2	Both
SECOND YEAR Fruit Farming Group					
Agricultural Engineering:—					
Land Drainage and Farm Sanitation	6a	4	2	2	First
Farm Shopwork	7b	3	1	2	Second
Agronomy (Elective)	7b	3	2	1	Second
Economics:—					
Economic Problems	7a	3	3	..	First
Farm Accounts and Management	8a	4	3	1	First
English	7	4	1	1	Both
Horticulture:					
Vegetable Gardening	6	8	2	2	Both
Ornamental Gardening	7a	3	2	1	First
Fruit Growing	8	8	2	2	Both
Physics	6a	3	1	2	First
Plant Pathology	6b	3	2	1	Second
Poultry Husbandry	6b	3	2	1	Second
Project	6	4	..	2	Both

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DESCRIPTION OF DIPLOMA COURSES

AGRICULTURAL ENGINEERING

1a. FARM MACHINERY

(a) A study of the gas engine as applied to stationary purposes, the automobile, and the tractor.

(b) Implements and Machinery. The use and adjustments of tillage and harvesting machinery.

1st Yr.:—2 lects., 1 lab., per wk., 1st term. *Professors Cooper and Malloch*

2b. FARM CONSTRUCTION

(a) Farmstead planning including the arrangement of the various buildings, the planning of houses and barns; fences and fencing.

(b) Carpentry and concrete work.

1st Yr.:—1 lect., 2 labs., per wk., 2nd term. *Professors Banting and Malloch*

6a. LAND DRAINAGE

Farm ponds; the water table and its control; surface drains and underdrainage; irrigation. Farm Sanitation. Water supplies and water systems, methods of sewage disposal.

2nd Yr.:—2 lects., 2 labs., per wk., 1st term. *Professor Banting*

7b. FARM SHOPWORK

Blacksmithing, rope splicing, soldering, gas and electric welding.

2nd Yr.:—1 lect.. 2 labs., per wk., 2nd term. *Professor Cooper*

Text Book:—Jones—Farm Shop Practice.

AGRICULTURE

1. A general course on Agriculture designed to give the student a proper conception of farming as an occupation and an appreciation of some important considerations in the selection and operation of farms.

1st Yr.:—1 lect. per wk., 2 terms. *Professor Hamilton*

AGRONOMY

1a. SOILS AND SOIL MANAGEMENT

Classes of soil, tillage, rotation, manuring, fertilizers, liming, drainage, etc., will be studied with a view to enabling the student to manage the soil on his own farm to best advantage.

1st Yr.:—3 lects. per wk., 1st term. *Professor Steppler*

3b. HAY AND PASTURE CROPS

These crops will be studied from the standpoints of their importance, varieties, culture, and management.

1st Yr.:—2 lects., 1 lab., per wk., 2nd term. *Mr. Bubar*

5b. CORN AND ROOT CROPS

As with Hay and Pasture Crops.

1st Yr.:—3 lects. per wk., 2nd term. *Mr. Keeler*

7b. CROP MANAGEMENT

Factors determining the crops to grow, cropping schemes for typical situations in Eastern Canada. Fertilizers and seed will be given further attention in this course.

2nd Yr.:—2 lects., 1 lab., per wk., 2nd term. *Professor Raymond*

9a. GRAIN CROPS

As with Hay and Pasture Crops.

2nd Yr.:—2 lects., 2 labs., per wk., 1st term. *Professor Klinck*

ANIMAL HUSBANDRY

1. FARM LIVESTOCK

Commercial types and classes of farm stock, their care and management, feeding, breeding, and judging.

1st Yr.:—2 lects., 2 labs., per wk., 2 terms.

Professors Hamilton and Moxley

6. FARM LIVESTOCK

A continuation of course 1, but dealing particularly with purebred stock.

2nd Yr.:—2 lects., 2 labs., per wk., 2 terms.

Professors Hamilton and Moxley

7b. LIVESTOCK BREEDING

In this course the more important basic principles underlying breeding practice are considered. Selection of breeding animals is studied in the light of what is known in regard to reproduction, transmission of characters, heredity, and environment.

2nd Yr.:—2 lects., per wk., 2nd term. *Professor Bradford*

ANIMAL NURSING

6b. The Course will cover situations usually encountered by farm managers and herdsmen.

2nd Yr.:—2 lects., 1 lab., per wk., 2nd term. *Professor Dale*

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BACTERIOLOGY

1b. AGRICULTURAL BACTERIOLOGY

Bacteria in relation to water, sewage, milk, and soil fertility; fermentations, food preservation and food poisoning.

1st Yr.:—1 lect., 1 lab., per wk., 2nd term.

BOTANY

1a. AGRICULTURAL BOTANY

The course consists of a study of the fundamentals of growth and reproduction processes in plants. The botany of economic plants will be studied as much as possible and consideration given to weeds and weed seeds and their control.

1st Yr.:—2 lects., 1 lab., per wk., 1st term.

CHEMISTRY

1b. Elementary Chemistry, with applications to soils, fertilizers, feeding stuffs, and insecticides and fungicides.

1st Yr.:—2 lects., 1 lab., per wk., 2nd term. *Mr. Henneberry*

DAIRYING

6b. A study of the composition of milk, the production of quality milk on the farm, pasteurization, butter and cheese processes. Testing dairy products, separating milk, butter and cheese making.

1st Yr.:—2 lects., 2 labs., per wk., 2nd term. *Dr. Anastassiadis*

ECONOMICS

7a. INTRODUCTION TO THE ECONOMICS OF CANADIAN AGRICULTURE

Science and economics. Nature of the Canadian economy. The place of agriculture in the Canadian economy. Land use and tenure in Canada. The production, marketing, and consumption of farm products in Canada—principles, products, and problems. One lecture period each week will be used as a discussion period.

2nd Yr.:—3 lects., per wk., 1st term. *Professor Haviland*

8a. FARM ACCOUNTS AND FARM MANAGEMENT

A system of single entry farm accounts involving inventories, cash receipts and expenses; a system of production records; the analysis of farm account and production records as a means of improving efficiency of production; farm income tax. A study of the economic guides to farm

management decisions. A farm visit followed by (1) detailed study of the farm visited, and (2) the development of alternative farm management plans using the budget method.

2nd Yr.:—3 lects., 1 lab., per wk., 1st term. *Professor MacFarlane*

ENGLISH

The students will be divided into a Senior and a Junior Group according to their attainments in English Speech and Literature:—

2. Literature, written composition, and public speaking are included in the course.

1st Yr.:—3 lects. per wk., 2 terms. *Professor Cole*

7. Lectures and laboratory work include a supervised reading course; instruction in practical forms of writing, the conduct of public meetings, and debating and discussion methods.

2nd Yr.:—1 lect., 1 lab., per wk., 2 terms. *Professor Avison*

ENTOMOLOGY

3a. An elementary treatment of the structure, habits, classification, and control of insects.

1st Yr.:—2 lects., 1 lab., per wk., 1st term. *Professor Morrison*

FARM FORESTRY

1a. Principal trees of Eastern Canada and their silvicultural characteristics; woodlot protection; requirements of good forest communities. Volume estimates of trees, logs and pulpwood, measurement of lumber; use of compass and pacing in woodlot cruising; calculation of annual cut; cutting methods as applied to even and uneven-aged forests; cultural measures to improve the woodlot; logging practices; reforestation, windbreaks and Christmas tree crops; marketing of products; management of maple groves.

1 lect., 2 labs., per wk., 1st term. *Mr. Jones*

HORTICULTURE

4. GENERAL HORTICULTURE

A course dealing with the principles of farm horticulture, including the home garden, the propagation of plants, seed sowing, the improvement of the home surroundings, the farm orchard, and small fruits plantations.

1st Yr.:—1 lect., 1 lab., per wk., 2 terms. *Professor Murray and staff*

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6. VEGETABLE GARDENING

The production of vegetables with reference to climate, soils, fertilizers, seeds, spraying, harvesting, grading, packing, storage, marketing, and processing, with practical instruction in the greenhouse and laboratory throughout the course.

2nd Yr.:—2 lects., 2 labs., per wk., 2 terms. *Professors Murray and David*

7a. ORNAMENTAL GARDENING

Foundation planting; choice and care of ornamental trees, shrubs, vines, and flowers for the home grounds, and the making and care of lawns. Some instruction will be given in commercial floriculture.

2nd Yr.:—2 lects., 1 lab., per wk., 1st term. *Miss Harney*

8. FRUIT GROWING

A practical study of orchard and small fruit production, including propagation, soils, fertilizers, culture, and other related phases, including spraying, harvesting, marketing, processing, and storage. One lecture per week during the second term will be used for complementary work on cold storage, by-products, etc.

2nd Yr.:—2 lects., 2 labs., per wk., 2 terms. *Professors Taper and David*

MATHEMATICS

1. A review of elementary arithmetic; decimals, percentage, ratio and proportion, mensuration; agricultural problems.

1st Yr.:—1 lect., 1 lab., per wk., 2 terms. *Professor Banting*

NUTRITION

6a. FEEDS AND FEEDING

A study of common animal feedingstuffs and of their use in livestock feeding.

2nd Yr.:—2 lects. per wk., 1st term. *Professor Lloyd*

PHYSICS

6a. An elementary course dealing with the fundamental principles of Physics and their application in agricultural practice.

2nd Yr.:—1 lect., 2 labs., per wk., 1st term. *Professor Oliver*

PLANT PATHOLOGY

6b. PLANT DISEASES

Studies of important plant diseases in horticultural crops, including losses, symptoms, cause, and spread.

2nd Yr.:—(Fruit Farming Group) 2 lects., 1 lab., per wk., 2nd term.

Professor Callen

POULTRY HUSBANDRY

1. PRODUCTIVE POULTRY HUSBANDRY

The elements of poultry production and marketing applicable to general farm use. A study is made of the various breeds of chickens, ducks, geese, and turkeys and their general management through a complete production cycle.

1st Yr.:—2 lects., 1 lab., per wk., 2 terms. *Professor Nikolaiczuk*

6b. POULTRY MANAGEMENT PROBLEMS

The economic significance of the various factors influencing production returns on the basis of poultry management.

2nd Yr.:—2 lects., 1 lab., per wk., 2nd term. *Professor Maw*

PROJECT

6. Second year students are required to submit a project in the form of an essay and a questionnaire to be handed in not later than March 15th. The project work will comprise outlining in detail the present organization of a farm business and the crop and livestock practices used on the farm. This will include actual or carefully estimated farm costs, farm returns, and net income which might be expected under normal conditions from the present farm business. It will also comprise the development of an alternate farm plan aimed at improving the productivity and income of the farm. This will include a careful appraisal of the costs involved and a statement as to how and when the proposed changes are to be made. An analysis of the proposed plan indicating its advantages together with a compilation of the costs, returns, and net income, which might normally be expected during one year's operation under average conditions, is also required.

Questionnaire forms for organizing the necessary farm facts will be distributed before the close of the First year. They must be filled in during the summer and submitted as a part of the project.

2nd Yr.:—The equivalent of 2 labs., per wk., 2 terms.

Supervising Committee:—*Professor Hamilton (Chairman), Professors Cooper, MacFarlane, and Nikolaiczuk*

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DIPLOMA COURSE EXAMINATIONS

All students are required to give satisfactory evidence of mastery of the material of lecture and laboratory. Examinations are held at the end of the first term in all courses given and at the end of each course. The examiner will pass in to the Registrar the final mark giving the standing of each student in all the work of the course.

The pass mark in all examinations is 40 per cent. First Class standing is 75 per cent and over, Second Class standing is 60 to 74 per cent, Pass standing is 40 to 59 per cent.

For purposes of evaluation a full course consists of two lectures and two laboratory periods per week for one term or its equivalent and is rated at 100 marks. One lecture equals one laboratory period. More or less than full courses are rated proportionately. Students conditioned in papers of an aggregate value of 250 marks or less are required to write supplemental examinations in those subjects. Students conditioned in papers having an aggregate value of more than 250 marks are considered as having failed in the year's work.

Students who fail in the First year of the Diploma Course in Agriculture are not permitted to repeat the year, except by special action of the Faculty.

A student who is allowed to repeat a year may, by special permission, be exempted from attending lectures and passing examinations in one or more subjects in which he has already passed creditably and be required to take one or more subjects of the following year in his course. The choice of subjects must involve no conflict of hours in the time table.

Examination in any subject may be refused because of absence without accepted excuse from one or more classes in the subject. See page 4524.

REGULAR SUPPLEMENTAL EXAMINATIONS

A regular supplemental examination is a first supplemental examination in a subject.

Regular supplemental examinations are held immediately preceding the opening of lectures in October, and following the sessional examinations in the spring.

A first supplemental examination in a subject, not involving the preparation of a special paper, may also be arranged in conjunction with the regular sessional examinations.

SPECIAL SUPPLEMENTAL EXAMINATIONS

Supplemental examinations taken at other times than those appointed, and supplemental examinations taken subsequent to a first supplemental examination, are special supplementals and must be arranged with the Registrar.

Every candidate for either a regular or a special supplemental examination is required to fill out an application form for such examination and to return it with the necessary fee ($2.00 per paper) at least three weeks before the examination begins. Application forms may be obtained from the Registrar.

No student writing a supplemental examination in a subject shall be granted marks higher than the required pass mark—i.e., 40%.

ADVANCED DIPLOMA COURSE

Students who obtain at least high second-class standing in each year of the Diploma Course, may continue for a further year. For admission to the Third year the candidate's application and schedule of courses and any revision thereof must receive the approval of the Faculty.

The course is intended for those who do not desire a degree but are anxious to extend their educational equipment beyond the two-year course and to train themselves for the responsibilities of rural leadership. It is designed to permit those of good ability and some maturity to pursue a course where more emphasis is placed upon private study and individual effort than is possible during the first two years, when lectures and classroom exercices consume the bulk of the student's time.

During the session, which, for the Advanced Diploma Course, dates from the opening of the Degree Course, the student's time is divided between assigned studies, projects, and departmental work. His curriculum includes reading, preparing reports, writing essays, and course work.

The course is not rigidly prescribed and is intended to be of a broad and general character. Nevertheless, it provides opportunity for the student to pay special attention to those phases of agriculture in which he is particularly interested. The courses taken will be selected from those listed below, but the student may be permitted to attend others which may be of value to him. The courses will be selected in consultation with the Chairman of the Diploma Course Committee.

At the end of his course of study, the student will submit himself to examinations in the individual courses taken when required, and to a series

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of comprehensive examinations in practical and scientific agriculture, written and oral, set by a Board of Examiners appointed for the purpose.

An Advanced Diploma in Agriculture may be awarded at the completion of the year's work or may be withheld until the student has demonstrated the necessary capacity in the work undertaken.

Only a limited number of students will be accepted each year.

Courses may be chosen from the following list, supplemented, if desired, by others approved by the Faculty:—

AGRICULTURAL ENGINEERING:—431b, 432b, 433a, 344b.

AGRONOMY:—436b, 343 (First term only if desired).

ANIMAL HUSBANDRY:—330a, 334b, 335b, 441b.

BOTANY:—330b.

ECONOMICS:—*220b, 330b, 331b, 332a.

ENGLISH:—*114, *226.

ENTOMOLOGY:—434b.

EXTENSION METHODS:—330.

HORTICULTURE:—431, 338a, 339b, 343a, 344b.

PLANT PATHOLOGY:—331a.

POULTRY HUSBANDRY:—431a, 333a, 435, 438b.

*The courses marked with an asterisk are required and examination must be taken in them.

B.Sc. (H.Ec.) Course

This is a four year professional course for women leading to the degree of Bachelor of Science in Home Economics. The training enables the graduate to undertake positions in many of the different branches of Home Economics, including dietetics and the teaching of Home Economics in schools.

Students who wish to qualify for a teaching certificate in Home Economics must decide before entering the Fourth year, since this specialist training is given during the last year. Properly qualified students may be granted a Specialist Certificate for teaching Household Science subjects, on graduation. This certificate is granted by the Protestant Central Board of Examiners of the Province of Quebec and only those students who may legally teach in the Protestant Schools of this Province should attempt to qualify for this certificate. Those desiring to apply for the certificate will be required to observe and teach in the elementary and secondary schools of the province for periods of time totalling not less than five weeks. It may be necessary to limit the number of students in the teaching option.

The practice of dietetics is the assuming of responsibility for the production of food in hospitals, institutions, and commercial restaurants, and opportunities to observe and practise kitchen administration are provided in the dining room of the staff residence at "Glenaladale" and in the main kitchen and cafeteria. Further training is offered by hospitals and commercial institutions after graduation.

The course also includes training in home management in a model house (the Walter M. Stewart House), which is located on the campus. Here students live together, under supervision, and are responsible for all the household routines.

The four year course in Home Economics prepares students for professional careers as dietitians, home economics teachers, nutritionists, extension workers with government services, home economists in home service bureaus, and many other positions. In addition, it provides a general university education, and is of incomparable value as a background for homemaking.

CLASSES OF STUDENTS

1. *Regular Undergraduates* are students with complete matriculation qualifications and who are taking the regular work of their year toward the appropriate degree or diploma.

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2. *Limited Undergraduates* are students with complete matriculation but who, due to ill health of other circumstances, do not fit into the regular classification of years (first, second, etc.) and who may be unable to complete their work in the normal length of time.

3. *Partial Students* are those not proceeding to a degree or diploma, including those doing a qualifying year for graduate work, or those earning credits for transfer to another faculty or institution.

ENTRANCE REQUIREMENTS

1. The general requirements, page 4531.

2. Academic requirements, page 4533, under "Entrance B.Sc. (Agr.) Course", with modifications indicated.

3. Applicants who have satisfactory Senior Matriculation standing in the required subjects may be admitted to the Second year of the B.Sc. (H.Ec.) course.

APPLICATION FOR RESIDENCE ACCOMMODATION

See under "Residence", page 4521.

SYLLABUS

B.Sc.(H.Ec.) Course

SUBJECTS	Course Numbers	Unit Value	Periods per week		Term Given
			Lects.	Labs.	
FIRST YEAR					
Art:—					
Art Appreciation	110a	2	1	1	First
*Botany:—					
Introductory Botany	110	8	2	2	Both
Chemistry:—					
Inorganic Chemistry	110	10	3	2	Both
English:—					
Composition	114	4	1	1	Both
Literature	116	4	2	..	Both
Household Science:—					
Introduction to Household Science	110a	2	2	..	First
Mathematics:—					
Plane Trigonometry	111	3	2	..	First
	..	..	1	..	Second
Algebra	112	3	1	..	First
	..	..	2	..	Second
Physics:—					
General Physics	112	8	3	1	Both
Physical Education	10	Minimum 2 hours weekly			
Textiles:—					
Laundering	110b	3	2	1	Second
SECOND YEAR					
Art:—					
Interior Decoration	220b	2	1	1	Second
Chemistry:—					
Organic Chemistry	220	10	3	2	Both
Clothing:—					
Clothing Selection	220a	2	2	..	First
**English:—					
Modern Literature	225	4	2	..	Both
or					
Speaking and Writing	226	4	2	..	First
		..	1	1	Second
Foods and Cookery:—					
Basic Cookery	226	10	2	3	Both
Household Administration	220	3	1	..	First
		..	1	1	Second
Nutrition:—					
Elementary Nutrition	220a	2	2	..	First
Textiles:					
Fibres and Fabrics	220	4	2	..	Both
Zoology:—					
General Zoology	220	8	2	2	Both

*First year or Senior Matriculation Biology, or a foreign language, will be accepted in lieu of Botany 110.

**Second year students must take either English 225 or English 226.

See also elective courses in French and History, pages 4573, 4574.

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SYLLABUS

B.Sc. (H.Ec.) Course

SUBJECTS	Course Numbers	Unit Value	Periods per week		Term Given
			Lects.	Labs.	
THIRD YEAR					
Bacteriology:—					
General and Food Bacteriology	331a	4	2	2	First
Chemistry:—					
General Biochemistry	332a	4	2	2	First
Physiological Chemistry	347b	4	2	2	Second
Child Psychology (elective)	331c	3	3	..	Either
Clothing:—					
Principles of Construction	330	3	..	1	First
				2	Second
Economics:—					
Elementary Principles	220b	3	3	..	Second
Foods and Cookery:—					
Advanced Cookery	332	5	1	1½	Both
Food Values	333a	2	1	1	First
Food Selection	335	2	1	..	Both
Home Economics Education:—					
Educational Psychology	330c	3	3	..	Either
Household Administration:—					
Home Management	331c	4	1	3	Either
Physics:—					
Biophysics	340a	2	1	1	First
Physiology:—					
Elementary Physiology	330b	3	3	..	Second
Sociology (elective)	340c	3	3	..	Either
Elective:—(to be chosen from any non-compulsory course)	..	3	..	..	Either
FOURTH YEAR					
Teaching Option					
Chemistry:—					
Textile Chemistry	450a	2	1	1	First
Clothing:—					
Advanced Clothing	440	6	..	3	Both
Home Economics Education:					
General Educational Practice	411	3	2	..	First
		..	1	..	Second
Methods of Instruction	440a	4	4	..	First
Principles of Group Education	442c	2	..	2	Either
Observation and Practice Teaching	443b	4	2	2	Second
Problems in Home Economics Education	453b	2	2	..	Second
Institution Administration:—					
Institution Practice	441c	1	..	1	Either
Nutrition and Dietetics:—					
Fundamentals of Nutrition	430	6	2	1	Both
Nutrition Seminar	444a	2	2	..	First
Dietetics Option					
Home Economics Education:—					
Principles of Group Education	442c	3	..	3	Either
Foods and Cookery:—					
Experimental Cookery	434b	3	1	2	Second
Institution Administration:—					
Institution Practice	441c	2	..	2	Either
Food Production	442b	2	2	..	Second
Institutional Cost Accounting	443a	2	2	..	First
Personnel Management	444a	2	2	..	First
Kitchen Organization	445b	3	3	..	Second
Nutrition and Dietetics:—					
Fundamentals of Nutrition	430	6	3	..	Both
Diet Therapy	441	6	2	..	First
		..	3	1	Second
Nutrition Seminar	444a	2	2	..	First

DESCRIPTION OF COURSES

ART

110a. ART APPRECIATION

A study of the main periods in Art and the influence of Art in modern society.

1st Year:—1 lect., 1 lab., per wk., 1st term.

Miss Jaques (Institute of Education)

220b. INTERIOR DECORATION

A study of domestic architecture, period furniture, colour theory, harmony, and planning of interiors, with special emphasis on institutions and food service areas. History of painting, with special attention to the moderns.

2nd Year:—1 lect., 1 lab., per wk., 2nd term.

Miss Jaques (Institute of Education)

BACTERIOLOGY

331a. BACTERIOLOGY

A course in general and food bacteriology.

3rd Yr.:—2 lects., 2 labs., per wk., 1st term. *Professor Wallace*

Text Book:—Frobisher, Fundamentals of Bacteriology.

BOTANY—*Taken with B.Sc. (Agr.)*

110. INTRODUCTORY BOTANY

1st Yr.:—2 lects., 2 labs., per wk., 2 terms. *Professor Callen*

CHEMISTRY—*Taken with B.Sc. (Agr.)*

110. INORGANIC CHEMISTRY

1st Yr.:—3 lects., 2 labs., per wk., 2 terms. *Mr. Henneberry*

220. ORGANIC CHEMISTRY

Fundamental concepts of organic chemistry; properties and structure of related aliphatic, aromatic and heterocyclic compounds. Laboratory work includes preparation and examination of typical organic compounds.

2nd Yr.:—3 lects., 2 labs., per wk., 2 terms. *Professor Baker*

332a. GENERAL BIOCHEMISTRY

3rd Yr.:—2 lects., 2 labs., per wk., 1st term. *Professor Common*

347b. PHYSIOLOGICAL CHEMISTRY

Prerequisites: Chemistry 332a and Physics 340a.

3rd Yr.:—2 lects., 2 labs., per wk., 2nd term. *Professor Common*

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450a. TEXTILE CHEMISTRY

A study of the physical and chemical structure of textile fibres to explain their behaviour under wear conditions.

Prerequisite: Textiles 220

4th Yr:—1 lect., 1 lab. per wk., 1st term. *Professor Jenkins*

451a. CHEMISTRY OF FOODS AND FEEDINGSTUFFS

2 lects., 2 lab., per wk., 1st term. *Elective.*

Professor Common and Dr. Anastassiadis

CLOTHING

220a. CLOTHING SELECTION

History of costume; principles of design as applied to dress; fabrics used for clothing; wardrobe planning with student demonstrations.

2nd Yr.:—2 lects. per wk., 1st term. *Professor Jenkins*

330. PRINCIPLES OF CLOTHING CONSTRUCTION

Three garments are made, one each of cotton, wool, and rayon.

3rd Yr.:—1 lab. per wk., 1st term. 2 labs. per wk., 2nd term.

Professor Jenkins

440. ADVANCED CLOTHING

An advanced course in dressmaking and costume design including pattern making and tailoring. Experience in weaving is arranged in May of each year for Third year students who plan to enroll in the Teaching Option in the Fourth year. These students remain for two weeks after the final examinations. A fee of $8.00 is charged to cover the cost of materials.

4th Yr:—3 labs. per wk., 2 terms. *Professor Jenkins*

ECONOMICS—*Taken with B.Sc. (Agr.)*

220b. ELEMENTARY PRINCIPLES

3rd Yr.:—3 lects. per wk., 2nd term. *Professor MacFarlane*

330b. MARKETING OF FARM PRODUCTS

A study of the marketing of the principal farm products and an analysis and appraisal of private, co-operative, and governmental marketing facilities, with reference to the width of marketing and processing margins. *Elective.*

3 lects. per wk., 2nd term. *Professor Haviland*

333. PRINCIPLES OF ECONOMIC THEORY

An intermediate course in economic theory concerned with an analysis of the forces determining the level of prices, production, and employment. *Elective.*

3 lects. per wk., 2 terms. *Professor Haviland*

ENGLISH—*Taken with B.Sc. (Agr.)*

114. ENGLISH COMPOSITION

1st Yr.:—1 lect., 1 lab., per wk., 2 terms.

Professors Avison, Cole, and Mrs. Dubreuil

116. ENGLISH LITERATURE

1st Yr.:—2 lects. per wk., 2 terms. *Professor Cole*

225. MODERN LITERATURE

An extension of Course 116, with topics and readings drawn from the work of British, Canadian, and American writers in the period from 1880 to the present. This course may be elected by Third or Fourth year students.

2nd Yr.:—2 lects. per wk., 2 terms. *Professor Hall*

226. SPEAKING AND WRITING

An extension of Course 114 for students who require or desire further practice in oral and written expression. Laboratory periods may be substituted for lectures. This course may be elected by Third or Fourth year students.

2nd Yr.:—2 lects. per wk., 1st term; 1 lect., 1 lab., per wk., 2nd term.

Professors Avison, Cole, and Mrs. Dubreuil

All Second year degree course students must take either English 225 or English 226. The prerequisite to these courses is successful completion of Senior Matriculation English Literature and Composition, or English 114 and 116 at Macdonald College.

331. THE LITERATURE OF RURAL LIFE

A study of Canadian and American regional literature. The schedule of topics and readings, covering the period from pioneer settlements to the present day, emphasizes the large place in our literature held by prose and poetry which is inspired by the land and the people who live on the land. *Elective.*

3rd or 4th Yr.:—1 lect. per wk., 1st term; 2 lects. per wk., 2nd term.

Professor Avison

332. MODERN DRAMA

A reading course in modern English and American drama with special attention to trends and developments since 1900. Not given for fewer than 5 students. *Elective.*

2 lects. per wk., 1st term; 1 lect. per wk., 2nd term. *Professor Hall*

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EXTENSION METHODS

330. EXTENSION METHODS

A course in public speaking, study group technique, extension methods in Agriculture and Household Science, rural sociology. *Elective.*

3rd or 4th Yr.:—1 lect., 1 lab., per wk., 2 terms.

Professor Avison and Committee

FOODS AND COOKERY

226. BASIC COOKERY

Study and practice in methods of food preservation. The selection and preparation of foods and the principles of cookery

2nd Yr.:—2 lects., 3 labs., per wk., 2 terms, and five days of laboratory work in food preservation prior to the opening of the session.

Miss McCormick

332. ADVANCED COOKERY

An advanced course in food preparation.

3rd Yr.:—1 lect., 1½ labs., per wk., 2 terms. *Miss Stickwood*

333a. FOOD VALUES

Calculation of the nutritive value of foods and meals, with practical application.

3rd Yr.:—1 lect., 1 lab., per wk., 1st term. *Miss Stickwood*

335. FOOD SELECTION

A study of foods, including the selection and use of rare fruits and vegetables and food adjuncts.

3rd Yr.:—1 lect. per wk., 2 terms. *Miss Stickwood*

434b. EXPERIMENTAL COOKERY

Experience in experimental procedures and the interpretation of results. Each student completes one project.

4th Yr.:—1 lect., 2 labs. per wk., 2nd term. *Professor Devereaux*

FRENCH

100. French is used exclusively by lecturer and students in this course.

(a) *Travail oral:* The aim of this section of the course is to increase fluency, accuracy, and precision in speaking French. Assignments vary according to the interests and capabilities of the students.

(b) *Explication de textes:* A study, gauged to the achievement level of the students, of a novel of French Canada. The primary object is to master the story and to appreciate the atmosphere of French Canada as portrayed in the novel. Subsequently a detailed analysis is undertaken.

(c) *Cours de civilisation:* A survey course of French history; biographical and literary aspects are stressed.

Texts to be announced. *Elective.*

3 lects. per wk., 2 terms. *Professor Hawkins (Institute of Education)*

300. *Aim:* practice in French for students who expect to work in Quebec Province: preparatory work for postgraduate students who intend to meet second language requirements in French. Emphasis will depend on needs of students enrolled. *Prerequisite:* Quebec High School Leaving French or equivalent. *Content:* writing, reading and oral practice.

3 lects. per wk., 2 terms. *Elective.*

Professor Hawkins (Institute of Education)

HISTORY

100. European civilization in medieval and modern periods.

3 lects. per wk. 2 terms. *Elective.*

Professor Zagorin (Faculty of Arts and Science)

HOME ECONOMICS EDUCATION

330c. PSYCHOLOGY

General and practical aspects applied to teaching, learning, and living.

3rd Yr:—3 lects. per wk., either term *Professor Honey*

411. GENERAL EDUCATIONAL PRACTICE

Taken in conjunction with the School for Teachers by students in the Teaching Option. Registration is on September 7th.

4th Yr.:—Equivalent of 2 lect. per wk., 1st term, 1 lect. per wk., 2nd term. *Institute of Education Staff*

440a. METHODS OF INSTRUCTION

Applications of principles studied in Education 330c. Examination of curricula in Home Economics with particular attention to the Quebec course of study. Selection and organization of subject matter for various types of lesson; class management; observation and teaching of discussion and laboratory classes.

4th Yr.:—4 lects. per wk., 1st term. *Professor Honey*

442c. PRINCIPLES OF GROUP EDUCATION

This course furnishes experience in the preparation of material for the public in the form of food, clothing, or equipment demonstrations. Job Instruction Training is included. Students who take Education 440a, and Education 443b and 453b will be required to take the equivalent of only 2 laboratory periods per week.

4th Yr.:—Equivalent of 3 labs. per wk., either term (Dietetics Option).

Equivalent of 2 labs. per wk., either term (Teaching Option).

Professor Honey

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443b. OBSERVATION AND PRACTICE TEACHING

Observation and practice teaching in Macdonald High School and in the schools of the Protestant School Board of Greater Montreal. Experience will also be arranged in rural schools when possible.

4th Yr.:—Equivalent of 2 lects., 2 labs. per wk., 2nd term.

Professor Honey

453b. PROBLEMS IN HOME ECONOMICS EDUCATION

This course runs concurrently with Education 443b. Problems arising from field experience serve as the basis for some of the discussion. Examination of types of laboratories and equipment used in teaching Home Economics; study of various methods of keeping records, of evaluating practical and written work; the use of books, magazines, films, filmstrips, and other source material; organization and preparation of teaching materials for classes in Home Economics.

4th Yr.:—2 lects. per wk., 2nd term. *Professor Honey*

HOUSEHOLD ADMINISTRATION

220. HOUSEHOLD ADMINISTRATION

A study of house planning, with detailed attention to kitchen from the standpoint of function, convenience, and safety; selection, use, and care of household equipment and furnishings, including practical work in cleaning; menu planning, table service and decorations.

2nd Yr.:—1 lect. per wk., 1st term; 1 lect., 1 lab., per wk., 2nd term.

Professor Devereaux

331c. HOME MANAGEMENT

A study of the process of home management; planning, carrying out the plan, and evaluating with practical application in a well-equipped house on the campus where groups of five students, under supervision, have charge of managing the home, including menu planning, preparation and service, marketing, accounting, and care of supplies, equipment, and furnishings.

3rd Yr.:—3 weeks in Home Management House. 1 lect., and the equivalent of 3 labs., per wk., 1 term. *Professor Devereaux*

HOUSEHOLD SCIENCE

110a. INTRODUCTION TO HOUSEHOLD SCIENCE

A course of lectures arranged to acquaint the student with the development and scope of Household Science.

1st Yr.:—2 lects. per wk., 1st term. *Household Science Staff and others*

INSTITUTION ADMINISTRATION

441c. INSTITUTION PRACTICE

A. School Feeding. A study of school lunch programmes and cafeteria service, with opportunity for practical experience.

4th Yr.:—1 lab. per wk., 1 term. (Teaching Option.) *Miss McKirdy*

B. Institution Practice. Practical experience in quantity cookery, and institution routines in dining departments.

4th Yr.:—2 labs. per wk., 1 term. (Dietetics Option).

Staff

442b. FOOD PRODUCTION

Quantity food buying, principles of quantity cookery, and menu planning.

4th Yr.:—2 lects. per wk., 2nd term. *Miss McKirdy*

443a. INSTITUTIONAL COST ACCOUNTING

Food cost control methods and accounting procedures related to food service.

4th Yr.:—2 lects per wk., 1st term. *Miss McKirdy*

444a. PERSONNEL MANAGEMENT

A study of employee training programmes in dietary departments; leadership development.

4th Yr.:—2 lects. per wk., 1st term. *Professor Neilson*

445b. KITCHEN ORGANIZATION

The purchasing of large quantity equipment; kitchen planning and sanitation.

4th Yr.:—3 lects. per wk., 2nd term. *Professor Neilson*

MATHEMATICS—*Taken with B.Sc. (Agr.)*

111. PLANE TRIGONOMETRY

Radian measure, logarithms, definitions of the trigonometrical functions, relations between the trigonometrical functions, reduction of angles, addition formulae, transformations of sums and products, logarithmic solutions of triangles, problems in heights and distances, inverse functions, solution of trigonometric equations, graphs.

1st Yr.:—2 lects. per wk., 1st term. 1 lect. per wk., 2nd term.

Professor Henry (Institute of Education)

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112. ALGEBRA

Variation, progressions, with applications to compound interest, permutations and combinations, mathematical induction, binomial theorem, theory of quadratic equations.

1st Yr.:—1 lect. per wk., 1st term. 2 lects. per wk., 2nd term.

Professor Henry (Institute of Education)

NUTRITION AND DIETETICS

220a. ELEMENTARY NUTRITION

A study of the indications of good nutrition and the essential food constituents.

2nd Yr.:—2 lects. per wk., 1st term. *Miss McCormick*

430. FUNDAMENTALS OF NUTRITION

For description see Nutrition Department Course 430 in the B.Sc.(Agr.) syllabus.

4th Yr.:—2 lects., 1 lab., per wk., 2 terms.

Professors Crampton, Lloyd and Farmer

441. DIET THERAPY

The function of nutrition as a curative and preventive factor in disease. Visits to hospital clinics and dietary departments. Field trips.

4th Yr.:—2 lects. per wk., 1st term. 3 lects., 1 lab., per wk., 2nd term.

Miss Stickwood

444a. NUTRITION SEMINAR

Part of the work in this course will be taken with B.Sc.(Agr.) students.

4th Yr.:—2 seminars per wk., 1st term. *Professors Farmer and Neilson*

PHYSICAL EDUCATION

10. Physical Education will be included in the work of the First year, all students being required to attend a minimum of two hours weekly during the session. Opportunity is provided for participation of all students in archery, swimming, basketball, skating, hockey, and badminton.

1st Yr.:—1 period per wk., 2 terms. *Miss Nichol (Institute of Education)*

PHYSICS—*Taken with B.Sc.(Agr.)*

112. GENERAL PHYSICS

1st Yr.:—3 lects., 1 lab., per wk., 2 terms. *Professor Rowles*

340a. BIOPHYSICS

3rd Yr.:—1 lect., 1 lab., per wk., 1st term.

Professor Rowles and Mr. Fraser

PHYSIOLOGY—*Taken with B.Sc.(Agr.)*

330b. ELEMENTARY PHYSIOLOGY

3rd Yr.:—3 lects. per wk., 2nd term. *Professor Dale*

PSYCHOLOGY

EDUCATIONAL PSYCHOLOGY—See course Home Economics Education 330c.

331c. CHILD PSYCHOLOGY

The course will follow the development of the child from prenatal stages through the years of middle childhood. Special emphasis will be placed on the practical aspects of child care, training, behavior symptoms, and the everyday problems of the normal child. *Elective.*

3rd or 4th Yr.:—3 lects. per wk., 1 term.

Professor Young (Institute of Education)

SOCIOLOGY

340c. INTRODUCTION TO SOCIOLOGY—The Community

An examination of the social patterns of our society, with emphasis on group relationships. Special consideration will be given to the problems of the business and professional woman in modern society. *Elective.*

3 lects. per wk., 1 term. *Mrs. MacFarlane*

TEXTILES

110b. LAUNDERING

Effect of common chemicals on textile fabrics; methods of laundering, stain removal, and dry cleaning; study of laundry equipment.

1st Yr.:—2 lects., 1 lab., per wk., 2nd term. *Professor Jenkins*

220. TEXTILE FIBRES AND FABRICS

The source, construction, properties, and qualities of textile fibres and fabrics for clothing, household, and institutional use. Furnishings for the home and institution will be studied in order to establish a basis for the wise selection of textile materials by the consumer. Prerequisite to Chemistry 450b.

2nd Yr.:—2 lects. per wk., 2 terms.

ZOOLOGY—*Taken with B.Sc.(Agr.)*

220. GENERAL ZOOLOGY

2nd Yr.:—2 lects., 2 labs., per wk., 2 terms.

B.Sc.(H.Ec.) COURSE EXAMINATIONS

(See page 4582)

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Homemaker Course

The object of this course is to train girls to deal intelligently with problems relating to the management of a home. The courses are, therefore, planned to give the student training in the different branches of household work, supplemented by a study of the sciences and arts which are related to the home. In planning the course full consideration is given to modern economic development and its relation to the woman in the home.

This is a one year course commencing September 9th and finishing June 5th.

ENTRANCE REQUIREMENTS

1. For general requirements, see page 4531.

2. All candidates for admission to the Homemaker Course must be at least seventeen years of age and have successfully completed all but the final year of High School work. School certificates showing the candidate's standing in all High School courses, signed by the Principal, with a letter of recommendation from the school last attended, must accompany the application.

APPLICATION FOR RESIDENCE ACCOMMODATION

See under "Residence", page 4521.

SYLLABUS

HOUSEHOLD SCIENCE—HOMEMAKER COURSE

SUBJECTS	Course Numbers	Periods per week		Term Given
		Lects.	Labs.	
Art:—				
Interior Decoration	5	1	1	First
		1	..	Second
Handicrafts	6c	..	1	Either
Clothing and Textiles:—				
Clothing Selection	5	1	..	Both
Textiles and Laundering	6c	1	1	Either
Clothing Construction	7	1	2	Both
English	5	2	..	Both
Foods and Cookery	5	1	2½	Both
General Science	5	2	..	First
		3	..	Second
General Assignment	5	1	..	Both
Home and Family Life:—				
Family, Home, and Homemaker	5a	2	..	First
Child Development	6b	1	..	Second
Home Nursing	5b	1	..	Second*
Horticulture	5b	1½	..	Second*
Household Administration:—				
Equipment and Furnishings	6a	1	1	First
Home Management	7c	..	2	Either
Household Accounts	9b	2	..	Second*
Nutrition and Meal Planning:—				
Principles of Nutrition	5a	2	..	First
Meal Planning and Table Service	6a	1	..	First
Physical Education	5	..	1	Both

*8 - 10 weeks

DESCRIPTION OF COURSES

ART

5. INTERIOR DECORATION

A study of homes and interiors including colour, furniture, textures and arrangement. Appreciation of Art in various fields and the compiling of illustrated notes to be bound in book form at the end of the year.

1 lect., 1 lab., per wk., 1st term. 1 lect., per wk., 2nd term.

Miss Jaques (Institute of Education)

6c. HANDICRAFTS

Elementary principles of weaving and leathercraft. A special fee is charged for the purchase of materials. Approximate cost, $8.00.

Equivalent of 1 lab. per wk., either term.

Miss Wren (Handicrafts Department)

CLOTHING AND TEXTILES

5. CLOTHING SELECTION

A study of the principles of colour and design as applied to clothing selection; the history of costume; good grooming; standards for buying ready-made clothing and household textiles.

1 lect. per wk., 2 terms.

6c. TEXTILES AND LAUNDERING

A study of the construction of fabrics; finishing, dyeing, and printing; major fibres and their reactions to laundering or cleaning; recent developments in textiles; laundry soaps, soaps, and water softeners; stain removal; methods and practice in washing and ironing clothing and household fabrics, including study of types of washers and ironers.

1 lect., 1 lab., per wk., 1 term.

7. CLOTHING CONSTRUCTION

This course is designed to teach methods of constructing clothing and is based on student needs and abilities. Articles made may include some of the following: blouse, skirt, pyjamas, dress, children's clothing, tailored coat or suit. Emphasis is placed on gaining experience in handling the more difficult materials such as plaids, sheers, nylon, silk, jersey. Approximate cost of the course $20 to $25.

1 lect., 2 labs. per wk., 2 terms.

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ENGLISH

5. LITERATURE AND COMPOSITION

Lectures and laboratory work will cover these topics and activities: reading comprehension, appreciation of good literature, practical forms of writing, good speech, the conduct of public meetings, debating, and discussion methods.

2 lects. per wk., 2 terms. *Mrs. Dubreuil*

FOODS AND COOKERY

5. BASIC COOKERY

This includes a study of food materials—their composition, cost, and market conditions. as a basis for selection. Principles of food preparation are stressed and practice given in methods of cookery applicable to the home.

1 lect., 2½ labs., per wk., 2 terms. *Miss McKirdy*

GENERAL SCIENCE

5. PHYSICAL AND BIOLOGICAL SCIENCES

An introduction to the elements of chemistry, physics, and biology with special references to their application to the home.

2 lects. per wk., 1st term; 3 lects. per wk., 2nd term.

Faculty of Agriculture staff

HOME AND FAMILY LIFE

5a. THE FAMILY, HOME, AND HOMEMAKER

This course deals with the historical development of family life; the functions of the family; personality and self-integration; the present-day homemaker and her role in family and community life.

2 lects., per wk., 1st term. *Miss McCormick*

6b. CHILD DEVELOPMENT

The principles of child psychology as related to the study of child growth and development.

1 lect. per wk., 2nd term. *Miss McCormick*

HOME NURSING

5b. HOME NURSING

Location, ventilation, furnishing, temperature, care of sick room; making of beds; bed baths; care of patient; taking temperatures; prevention and care of bed sores, emergencies, infectious diseases. Care of young baby and mother. Dental health.

1 lect. per wk., 2nd term. (8-10 weeks.) *Miss James (Health Service)*

HORTICULTURE

5b. HOME GARDENING

This course includes a study of vegetable gardening, fruit culture, the lawn, the management of plants used in the beautification of grounds and the care of decorative plants in the home.

1½ hrs. per wk., 8 to 10 wks., 2nd term.

Miss Harney (Faculty of Agriculture)

HOUSEHOLD ADMINISTRATION

6a. EQUIPMENT AND FURNISHINGS

A study of house plans and kitchens, from the standpoint of convenience and attractiveness; selection, use, and care of household equipment and furnishings, including practical work in cleaning; study of time management; accident prevention in the home; control of household pests.

Presentation of various aspects of homemaking through the use of films, speakers, demonstrations, and class assignments.

1 lect., 1 lab., per wk., 1st term.

7c. HOME MANAGEMENT

See Home Management 331c (p. 4607).

Practice House Experience.

Equivalent of 2 labs. per wk., 1 term *Miss McCormick*

9b. HOUSEHOLD ACCOUNTS

This course deals with the problems of household financing and includes the study of standards of living, budgeting, simple methods of household accounting, savings, and investments. Practice is given in keeping personal accounts during this course.

2 lects. per wk., 8-10 wks., 2nd term.

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NUTRITION AND MEAL PLANNING

5a. PRINCIPLES OF NUTRITION

This course deals with the nutritional requirements for health, the provision for these in the diet, and the study of the nutritive properties of common food materials.

2 lects. per wk., 1st term. *Professor Neilson*

6a. MEAL PLANNING AND TABLE SERVICE

The application of nutrition in daily menu planning; menus for special occasions with appropriate table appointments; rules for table settings and service.

1 lect. per wk., 1st term. *Miss McCormick*

PHYSICAL EDUCATION

5. PHYSICAL EDUCATION

2 hrs. per wk., 2 terms. *Miss Nichol (Institute of Education)*

PERSONALITY AND CONDUCT

A credit is given for good performance in this field.

HOMEMAKER EXAMINATIONS

A certificate is granted to a student who successfully completes the course of study in the Homemaker Course.

For pass standing a minimum of 50% of the marks in each subject and 60% of the aggregate marks for the course is required.

Homemaker students conditioned in more than two subjects will be considered as having failed in the course.

Students conditioned in not more than two subjects may remove the condition by passing a supplemental examination in the particular subject or subjects.

Time lost through absence from classes must be made up after class hours, unless an official report of illness is received.

Examination in any subject may be refused because of absence without accepted excuse from one or more classes in the subject. *See page 4524.*

Loan Funds, Bursaries, Scholarships and Prizes

GENERAL

LOAN FUNDS

The College possesses loan funds of limited amount from which some assistance may be given to particularly deserving students of good academic standing who are specially recommended on personal grounds by the Dean of the Faculty of Agriculture or the Director of one of the Schools of the Faculty. The Secretary will be pleased to furnish full information on request.

BURSARIES AND SCHOLARSHIPS

Provincial Government Grant. The Department of Agriculture of the Province of Quebec grants to each graduate and undergraduate student in Agriculture who belongs to the Province of Quebec, and is registered for regular courses, $15.00 per month of attendance in studying according to the time table in the Faculty of Agriculture, Macdonald College. Other students in Agriculture receive grants of half this amount. This grant will be paid in two instalments, in January and in May. In the case of graduate students, only bona fide students who give full time to their studies are eligible for the grant.

Dominion-Provincial Loans and Bursaries. The Dominion and Provincial Governments jointly offer a number of bursaries and combined bursaries and loans to degree students in most faculties and schools. These are open to men and women on equal terms. The Quebec grants are half bursary and half loan, the latter being repayable one year after graduation. To be eligible for a Quebec grant, a student must be a British subject with at least five years' residence in the Province of Quebec, and must be under thirty years of age, in good academic standing, and in definite need of financial assistance. In some cases bursaries may be granted to married students.

Graduate students are not eligible under this plan, nor are students who receive any assistance from other Government funds. The award varies with the need and will not generally exceed $200 for a Montreal resident or $500 for a non-resident in any one session. These bursaries may be renewed upon application before 1st June if the conditions for

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granting the award are maintained. Applications for new bursaries must be submitted on the proper forms before 15th September. Decisions regarding renewals of these bursaries are usually made late in August, but decisions regarding the award of new bursaries are not usually made until after the middle of October. For further particulars apply to the Registrar's Office. Students coming from other provinces should inquire from their Provincial Departments of Education whether they are eligible to participate in any comparable scheme.

Children of War Dead (Education Assistance) Act. Under this Act fees and monthly allowances are provided for children of veterans whose death was attributable to military service. Enquiries should be directed to the nearest District Office of the Department of Veterans Affairs.

B.Sc. (Agr.) COURSE

Eliza M. Jones Scholarships. Five scholarships have been established by a bequest of the late F. P. Jones in memory of his mother. They are restricted to applicants who are entering the B.Sc. (Agr.) course for the first time. They have a minimum value of $200 and a maximum value of $300 and are renewable from year to year, provided satisfactory academic standing is maintained. Three are reserved for students who are entering the Third year of the course. Scholarships will be awarded on the basis of academic qualifications.

Application forms may be obtained from the Registrar, and all applications must be made before September 1st. Candidates are required to submit their complete High School record, their matriculation or school leaving marks, and a confidential letter from their school principal.

Macdonald College Bursaries. A limited number of bursaries are available for degree course students in Agriculture and Home Economics. These may be granted to students in any year of the course, but are intended primarily to assist deserving First year students who might not be able to attend college without this assistance. The value varies from $50 to $100 according to circumstances, and they are renewable from year to year provided application is made in good time and the recipient's academic record justifies renewal.

Bursary holders may be required to undertake a certain amount of work for the College in return for their bursaries. The maximum number of hours any bursary holder may be asked to give is three hours a week throughout the session, or one hour for each dollar of his bursary, whichever may be smaller.

Applications for a bursary, and for renewal of a bursary, must be made to the Registrar, on forms provided, before September 1st each year.

Alumni Bursaries. Two bursaries of $200 each are offered by the Macdonald Branch of the McGill Graduates' Society. One will be awarded to a student entering the B.Sc.(Agr.) course, the B.Sc.(H.Ec.) course, or the B.Ed. course. One will be awarded a student entering the Second year of one of these courses. The winner of the entrance bursary will be considered along with other applicants for the Second year bursary.

Application must be made to the Registrar before September 1st, on forms provided.

Borden Company Limited Scholarship. A scholarship valued at $200 is offered by the Borden Company Limited of Canada to encourage promising students who take a course of study of value to the dairy industry. The award will be made to a student on completion of his Third year, half payable at the beginning of the first term of the Fourth year, the balance at the beginning of the second term. The following factors will be considered in making the award: high standing in the subjects of his course during the Third year with emphasis on dairying, dairy chemistry, or dairy bacteriology; participation in student organizations and college activities; co-operation with students and staff in the advancement of the interests of the student body and the College as a whole.

Applications should be addressed to the Registrar before September 1st.

Daughters of the Empire Scholarship. As a recognition of the value of agricultural education in their Province and Country, the Imperial Order Daughters of the Empire, Quebec Provincial Chapter, gives a scholarship of $200, tenable during the Third and Fourth years of the B.Sc. (Agr.) course, to the British student who obtains the highest marks in the final examinations of the Second year. The scholarship is payable to the winning student in two instalments of $100 each at the beginning of his Third and Fourth years respectively.

James Rist Gorham Memorial Scholarship. A scholarship of $100 established by the late W. M. Gammon in memory of his friend, James Rist Gorham, B.Sc. (Agr.), killed in action March 17th, 1942. The scholarship will be granted to the student in the General Agriculture option who ranks first in the final examinations of the Third year.

Nova Scotia Agricultural College Scholarship. Macdonald College offers a scholarship of $500 to the student of the Nova Scotia Agricultural College who obtains the highest standing in the work of the Second year of the degree course in that College, and who subsequently registers in

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the Third year at Macdonald College. The scholarship will be paid in two instalments: half at the beginning of the Third year, half at the beginning of the Fourth year.

Robert Raynauld Prizes. Four prizes are offered by Robert Raynauld, M.S.A. '28, publisher of *La Ferme*. Two prizes, of $60 and $40 respectively, are awarded to the students standing first and second in course Agronomy 442—Project. The decision is based on both written and oral presentation.

A prize of $50 is awarded to each of the two students standing first in the Plant Breeding, and in the Soil Fertility phases of the Agronomy option as determined by the results of Third year examinations.

Steinberg Bursary. A bursary of $100 offered by Steinberg's Ltd., available to a student in the Third or the Fourth year of the B.Sc.(Agr.) course. Application to be made to the Registrar before September 1st.

Chemical Institute of Canada Prize. The Chemical Institute of Canada offers a prize of books to the value of $25 to the student in the Chemistry Option with the highest standing at the end of the Third year.

Society of Chemical Industry Prizes. Two prizes, one of $25 and one of $50, are offered by the Montreal Section of the Society of Chemical Industry (Canadian Section), for an original essay on a chemical subject. Undergraduate students are eligible to present papers. Further details may be obtained from the Chairman of the Chemistry Department, or from the Registrar's Office.

Lochhead Memorial Prize. A prize established by an endowment of $400 in memory of William Lochhead, B.A., M.Sc., the first Professor of Biology at Macdonald College. It is awarded to the student, majoring in Entomology, who takes the highest standing in the Fourth year, the prize, in value equal to the proceeds of the endowment for one year, to be in books selected by the winner with the approval of the Head of the Department of Entomology.

Class of 1953 Book Prize. Graduates of the class of 1953 (Agriculture and Household Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the second year curriculum. The prize will be awarded in the B.Sc.(Agr.) course in odd-numbered years; in the B.Sc.(H.Ec.) course in even-numbered years.

Governor General's Medal. His Excellency the Governor General of Canada donates a bronze medal to be awarded to the Second year student who ranks highest in General Proficiency in First and Second year work.

Applications for a bursary, and for renewal of a bursary, must be made to the Registrar, on forms provided, before September 1st each year.

Alumni Bursaries. Two bursaries of $200 each are offered by the Macdonald Branch of the McGill Graduates' Society. One will be awarded to a student entering the B.Sc.(Agr.) course, the B.Sc.(H.Ec.) course, or the B.Ed. course. One will be awarded a student entering the Second year of one of these courses. The winner of the entrance bursary will be considered along with other applicants for the Second year bursary.

Application must be made to the Registrar before September 1st, on forms provided.

Borden Company Limited Scholarship. A scholarship valued at $200 is offered by the Borden Company Limited of Canada to encourage promising students who take a course of study of value to the dairy industry. The award will be made to a student on completion of his Third year, half payable at the beginning of the first term of the Fourth year, the balance at the beginning of the second term. The following factors will be considered in making the award: high standing in the subjects of his course during the Third year with emphasis on dairying, dairy chemistry, or dairy bacteriology; participation in student organizations and college activities; co-operation with students and staff in the advancement of the interests of the student body and the College as a whole.

Applications should be addressed to the Registrar before September 1st.

Daughters of the Empire Scholarship. As a recognition of the value of agricultural education in their Province and Country, the Imperial Order Daughters of the Empire, Quebec Provincial Chapter, gives a scholarship of $200, tenable during the Third and Fourth years of the B.Sc. (Agr.) course, to the British student who obtains the highest marks in the final examinations of the Second year. The scholarship is payable to the winning student in two instalments of $100 each at the beginning of his Third and Fourth years respectively.

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Nova Scotia Agricultural College Scholarship. Macdonald College offers a scholarship of $500 to the student of the Nova Scotia Agricultural College who obtains the highest standing in the work of the Second year of the degree course in that College, and who subsequently registers in

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the Third year at Macdonald College. The scholarship will be paid in two instalments: half at the beginning of the Third year, half at the beginning of the Fourth year.

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A prize of $50 is awarded to each of the two students standing first in the Plant Breeding, and in the Soil Fertility phases of the Agronomy option as determined by the results of Third year examinations.

Steinberg Bursary. A bursary of $100 offered by Steinberg's Ltd., available to a student in the Third or the Fourth year of the B.Sc.(Agr.) course. Application to be made to the Registrar before September 1st.

Chemical Institute of Canada Prize. The Chemical Institute of Canada offers a prize of books to the value of $25 to the student in the Chemistry Option with the highest standing at the end of the Third year.

Society of Chemical Industry Prizes. Two prizes, one of $25 and one of $50, are offered by the Montreal Section of the Society of Chemical Industry (Canadian Section), for an original essay on a chemical subject. Undergraduate students are eligible to present papers. Further details may be obtained from the Chairman of the Chemistry Department, or from the Registrar's Office.

Lochhead Memorial Prize. A prize established by an endowment of $400 in memory of William Lochhead, B.A., M.Sc., the first Professor of Biology at Macdonald College. It is awarded to the student, majoring in Entomology, who takes the highest standing in the Fourth year, the prize, in value equal to the proceeds of the endowment for one year, to be in books selected by the winner with the approval of the Head of the Department of Entomology.

Class of 1953 Book Prize. Graduates of the class of 1953 (Agriculture and Household Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the second year curriculum. The prize will be awarded in the B.Sc.(Agr.) course in odd-numbered years; in the B.Sc.(H.Ec.) course in even-numbered years.

Governor General's Medal. His Excellency the Governor General of Canada donates a bronze medal to be awarded to the Second year student who ranks highest in General Proficiency in First and Second year work.

Lieutenant-Governor's Medal. His Honor the Lieutenant-Governor of the Province of Quebec gives annually a silver medal, which is awarded to the student who takes the highest standing in General Proficiency in the First year of the B.Sc. (Agr.) course.

Stern Cup. Sir Edward D. Stern, Fan Court, Chertsey, Surrey, England, has donated a silver challenge cup, which is held for one year by the student who makes the highest aggregate in Stock Judging in the final year of the subject.

Cutler Shield. Mr. Garnet H. Cutler, Professor of Agronomy, Purdue University, Lafayette, Indiana, the first lecturer in Cereal Husbandry, Macdonald College, has donated a bronze challenge shield, which is held for one year by the student majoring in Agronomy, who makes the highest aggregate in the final year.

Conklin Trophy. Dr. Raymond L. Conklin has donated a trophy to be held for one year by a student in any year of the degree course who obtains the highest percentage of total marks and who, during the same year, has won a place on the College Rugby team and on one other team sport. The winner's name will be engraved on a shield on the trophy which will be awarded only once to any individual.

Janet Morison Robb Bursary for Women. See page 4623.

General University Scholarships. See page 4624.

Note:—No prize will be awarded to any student in any of the classes whose percentage of marks is below seventy, unless by special action of the Faculty.

GRADUATE SCHOLARSHIPS

Walter M. Stewart Scholarships. Two scholarships of $1000 each are offered graduate students at Macdonald College. One may be held by a graduate student whose undergraduate work was taken at the Institut Agricole d'Oka, one by a student from Ste. Anne de la Pocatiere. Application for these scholarships must be made to the Directors of the two colleges mentioned.

C.I.L. Fellowship. Canadian Industries offer a Fellowship to a student engaged in graduate work at Macdonald College. For students working at the M.Sc. level the value of the award is $1200; for those working at the Ph.D. level, $1700. The Fellowship is open to any British subject who is a graduate of a recognized university, and the chosen candidate may be registered in any department provided he is engaged in laboratory research related to chemistry in agriculture. At the close of the academic year a full written report of all work performed under the Fellowship shall be submitted to Canadian Industries Limited.

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Each award shall be for one academic year but, in the event that a Fellow shows by his progress and application that such a course is desirable, the Fellowship may be re-awarded to the same person for a further term of one year.

Applications, addressed to the Registrar, must be made before May 15th each year.

Cominco Fellowship. The Consolidated Mining and Smelting Company of Canada, Limited, offers annually a fellowship of $1000 for research related to metals, fertilizers, and chemicals; an additional grant up to $200 may be made for research expenses or for continuance of the investigation. The fellowship is open to graduates of any approved university, in Science, Engineering, or Agriculture, who will normally be proceeding towards a higher degree at McGill. Canadian applicants are preferred. The topic of research will be selected in consultation with the donors and with the Dean of the Faculty of Graduate Studies and Research, to whom application should be made not later than May 1st.

DIPLOMA COURSE

Fisher Trust Fund. In memory of the late Honourable Sydney A. Fisher, formerly Member of Parliament for Brome County and Minister of Agriculture, Canada, two agricultural scholarships of $75 a year each tenable at Macdonald College for two years are offered, for the Diploma Course in Agriculture, on the following conditions:—

1. The candidates must be sons of farmers in the County of Brome, co-operating in farm activities during the period of their college course.

2. The candidates must be at least sixteen years of age.

3. The candidates must have passed at least grade IX of the High School course.

4. These scholarships will be continued from term to term only upon favourable reports from the Dean of the Faculty of Agriculture.

Applications must be sent, on or before the 1st of October, to the Chairman of the Fisher Trustees, R. F. Cowan, Mansonville, Que.

Q.W.I. Bursary. The Quebec Women's Institute provides a bursary of $100 to the student entering the Second year of the Diploma Course, who:—

(1) Is a professional farmer's son, (or daughter) from the Province of Quebec.

(2) Has spent at least one season (seed time to harvest) in his father's employ on the farm.

(3) Intends to return to his father's farm for at least one year on completion of his course (or to manage his own farm).

(4) And who, if more than one candidate presents himself as fulfilling the above three requirements, takes the highest proficiency in agricultural subjects in the First year or, if he is the only candidate, obtains at least class II standing in these subjects.

If no student can qualify for the above, this bursary will be made available as an entrance bursary to the First year of the Diploma Course.

Kiwanis Club Bursaries. The Kiwanis Club of Montreal offers five bursaries of $100 each for students entering the First year of the Diploma Course. Special consideration will be given to applications from members of calf clubs in their home districts. The bursaries are restricted to students from the Montreal area, which includes calf clubs at Huntingdon, Ormstown, Howick, Cowansville, Lachute, and Arundel.

Applications must reach the Registrar not later than October 1st, and must be accompanied by a letter of recommendation from the applicant's school principal, calf club leader, or agricultural representative.

La Ferme Prize. Robert Raynauld, M.S.A., Editor of *La Ferme* magazine, offers a prize of $25 for competition among students of the Second year of the Diploma Course who come from farm homes and who intend to return to farming after graduation. The prize will be awarded to the eligible student who presents the best project.

Lieutenant-Governor's Medal. His Honour the Lieutenant-Governor of the Province of Quebec, gives annually a bronze medal, which is awarded to the student who takes the highest percentage in General Proficiency in the First year of the Diploma Course.

Minister of Agriculture's Medals. The Honourable the Minister of Agriculture of the Province of Quebec offers annually two bronze medals in connection with the Diploma Course, Second year Class, to be presented to the students ranking first in the Dairy Farming and in the Fruit Farming Groups respectively.

B.Sc. (H.Ec.) COURSE

Frederica Campbell Macfarlane Scholarship. A scholarship has been donated by the Quebec Women's Institute in memory of the late Frederica Campbell Macfarlane, graduate in Institution Administration, 1912, Superintendent of the Quebec Women's Institute from 1913 to 1919. This scholarship, valued at $100, is open only to students from a rural district of the Province of Quebec, and is awarded on the results of the final examinations in any one of the first three years of the B.Sc. (H.Ec.) Course.

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Mrs. Alfred Watt Memorial Scholarship. A Scholarship has been established by the Quebec Women's Institutes as a memorial to a distinguished Canadian, Mrs. Alfred Watt, M.B.E., who introduced the idea of Women's Institutes in England and Wales and was President of the Associated Country Women of the World from 1930 to 1947. This scholarship, valued at $100 annually, is awarded to a student from rural Quebec in the Second, Third or Fourth year of the B.Sc. (H.Ec.) course who shows qualities of leadership and is worthy of financial encouragement to complete her course.

I.O.D.E. Bursary. The Imperial Order Daughters of the Empire offers a bursary of $200 to a British student who has successfully completed the Second year of the B.Sc. (H.Ec.) course and has obtained satisfactory standing. The bursary is offered to aid a worthy student who is in need of financial assistance in order to complete her studies. It is payable in two equal instalments at the beginning of the Third and the Fourth years of the course. Other considerations being equal, preference will be given to a candidate from rural Quebec. Application must be made to the Registrar before October 1st, on forms supplied by the College.

Alumni Bursaries. Two bursaries of $200 each are offered by the Macdonald Branch of the McGill Graduates' Society. One will be awarded to a student entering the B.Sc.(Agr.) course, the B.Sc.(H.Ec.) course, or the B.Ed. course. One will be awarded a student entering the Second year of one of these courses. The winner of the entrance bursary will be considered along with other applicants for the Second year bursary.

Application must be made to the Registrar before September 1st, on forms provided.

Montreal Home Economics Association Bursaries. Two entrance bursaries of $50 each are offered, one for a student entering the First year of the B.Sc.(H.Ec.) course from any high school on the Island of Montreal, one for a student from any other high school in the Province of Quebec. In addition, the Association offers a bursary of $100 to a deserving student on completion of the Third year of the B.Sc.(H.Ec.) course. Application must be made to the Registrar before October 1st, on forms supplied by the College.

Janet Morison Robb Bursary for Women. This bursary was established, by an endowment of $2,000, by the late Honourable James A. Robb, formerly Member of Parliament for Chateauguay-Huntingdon and Minister of Finance, Canada, in memory of his deceased daughter, Janet Morison Robb, wife of Hugh Harvie Donald. The annual bursary will be the income from the endowment for one year.

Preference will be given to women students resident in either of the counties of Chateauguay-Huntingdon, or Beauharnois, who are daughters of widowed mothers of limited or moderate means, or daughters of widowers in similar financial circumstances, or daughters of disabled Canadian soldiers who have seen active service.

Candidates for this bursary are requested to make written application, addressed to the Registrar, Macdonald College, Que., *on or before 15th April*, giving full particulars of the grounds upon which their applications are based, and to provide letters from two responsible persons in support of their claims.

Harrison Prize. A prize established by an endowment of $300 under the will of the late Dr. F. C. Harrison, Principal of Macdonald College from 1910 until 1926; awarded to the student of the B.Sc. (H.Ec.) course who graduates with the highest standing.

Class of 1953 Book Prize. Graduates of the class of 1953 (Agriculture and Household Science) have established a fund, the proceeds of which are used to provide a prize in books for the student with the highest standing in all the courses of the Second year curriculum. The prize will be awarded in the B.Sc.(Agr.) course in odd-numbered years; in the B.Sc.(H.Ec.) course in even-numbered years.

Home Economics Club Prize. The Home Economics Club of Macdonald College offers a prize of $25 to the student with the highest aggregate in Household Science subjects during the Second and Third years. The award will be made at the end of the Third year.

Lieutenant Governor's Silver Medal. Awarded to the student who ranks highest in the Third year of the B.Sc.(H.Ec.) course.

Lieutenant Governor's Bronze Medal. Awarded to the student who ranks highest in the Second year of the B.Sc.(H.Ec.) course.

UNIVERSITY SCHOLARSHIPS

Students at Macdonald College are eligible to apply for the following University scholarships and bursaries. Applications are to be sent to The Registrar, McGill University, Montreal 2, Que., before July 1st, unless otherwise stated.

Morris W. Wilson Memorial Scholarships. Established by contributions from a large number of intimate friends and business associates of the late Morris W. Wilson as a memorial to a distinguished citizen who, among his many public activities, rendered distinguished service to the cause of education, and who, at the time of his death, occupied the office

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of Chancellor of McGill University. The creation of the fund marks the culmination of a hope long cherished by Mr. Wilson, that of supplying the means whereby young Canadian boys and girls of outstanding ability and promise, but in poor financial circumstances, might obtain the benefits of a university education. It is hoped that this fund may be the means of assisting many deserving young Canadians, particularly those from rural areas, to become better equipped to perform the duties of citizenship and so more effectively to apply their abilities to the general development and welfare of the country.

These Scholarships are open on equal terms to men and women of Canadian parentage, now resident in Canada, and are open only to students who wish to enter the Faculty of Arts and Science, the Faculty of Engineering, or the degree course in Agriculture at Macdonald College. Each Scholarship covers the full tuition fee of the student, as well as the cost of board and residence at Douglas Hall, the Royal Victoria College, or Macdonald College, for the full period necessary to enable the student to obtain his degree. The holder will normally forfeit the Scholarship if, during his course, he fails to maintain academic standing satisfactory to the Selection Committee.

Canadian Pacific Railway Scholarships.—Scholarships covering five years' tuition in Chemical, Civil, Mechanical, or Electrical Engineering, or six years' tuition in the School of Architecture, or four years' tuition in the Arts courses of the Faculty of Arts and Science, or in the School of Commerce, or four years in the School of Household Science, Macdonald College, are awarded annually by the Canadian Pacific Railway Company. These are open for competition to apprentices and other employees of the Company under twenty-one years of age, as well as to minor sons and daughters of employees. The method of award is that of the University Entrance Scholarships described in the Scholarships Announcement, candidates being required to submit:

(a) their complete High School record,

(b) their marks or grades in any recognized examination,

(c) confidential letters from their school principals.

Forms of eligibility and full particulars as to the number of scholarships available, etc., may be obtained from Mr. G. A. Smyth, Superintendent of Pensions and Staff Registrar, Pension Department, C.P.R. Offices, Montreal. Applications, on forms obtainable from the Registrar's Office, accompanied by statements of eligibility from Mr. Smyth, must reach the Registrar's Office before 1st July.

Ottawa Valley Graduates' Society Bursary of the value of $100. This bursary is given through the Ottawa Valley Branch of the Graduates'

Society. The winner is selected by the University from candidates who have written (1) The McGill School Certificate Examination or (2) The Quebec Catholic or Protestant High School Leaving Examination or (3) The Ontario Grade 12 Examination or (4) The McGill Senior School Certificate or (5) The Ontario Grade 13, or (6) The Quebec Catholic or Protestant Senior High School Leaving Examination.

Applications must reach the Registrar's Office, McGill University, before September 1st.

Isabella C. MacRae Scholarship. This scholarship of $150 is open to residents of Maxville, Ont., who have satisfied the requirements for entrance to McGill University. Should there be no successful applicants from this locality for six years, the scholarship will subsequently be open to any resident in Ontario.

Christie-Storer Scholarship. A scholarship of the value of $150, endowed by the above-named Chapter of the I.O.D.E. in memory of the men of St. Lambert who fell in the Great War, 1914-18, is awarded annually to the pupil residing in St. Lambert who stands highest in the June High School Leaving examination each year at the Chambly County High School.

B'nai B'rith Bursaries. Three bursaries of $100 each have been given by the Mount Royal Lodge of B'Nai B'rith. These bursaries are open to men and women students in any faculty. Need and scholarship will determine the award. Applications in writing must reach the Registrar's Office, McGill University, before the end of August.

B'nai B'rith Hillel Foundation Bursary. This Bursary of $200, established by the B'nai B'rith Hillel Foundation of McGill University, is awarded by the University Scholarships Committee to a deserving student, irrespective of race, colour, or creed, in any faculty, preference being given to a student returning from service in the armed forces.

Frederick Southam Ker Bursary. This bursary was established in 1941 by the late F. N. Southam in memory of his grandson, Frederick Southam Ker, who was killed in action on September 6th, 1940. This bursary of $175 is open on equal terms to men and women of all faculties without respect to religion or race. It is awarded to a student who gives promise of becoming a good citizen but is handicapped in his or her academic course by lack of funds. Financial need, character, and academic record are all taken into account in making the award.

St. Francis District Graduates' Society Bursary. This Bursary of $250 is restricted to residents of the area covered by the St. Francis District

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Branch of the Graduates' Society and is open to pupils of any high school or private school entering any faculty or school of McGill University, including Macdonald College. The Bursary may be renewed for a second year. An amount of $150 of the Bursary is to be repaid by the holder at the rate of a minimum of $50 per year after graduation. The award is made by the St. Francis District Branch of the Graduates' Society on the recommendation of the University Scholarships Committee. Application forms may be obtained from the Registrar's Office.

General Motors Scholarships. Three entrance scholarships at McGill University have been established by the General Motors Corporation of Canada and are open to outstanding young Canadian men and women entering the Faculty of Arts and Science, the Faculty of Engineering, or the degree courses in Agriculture or Household Science at Macdonald College. The scholarships are renewable annually until the holders obtain their first degrees provided they maintain a satisfactory academic standing. Should a holder withdraw or fail to maintain a satisfactory standing the scholarship may be awarded to another qualified candidate who is a member of the same class. The amount of each award is flexible and will range from an honorary award of $200 up to an award of $2,000 a year depending upon the demonstrated need of the individual. Applications must be submitted on or before the 1st of July.

Scholarship granted by the Graduates' Society of the District of Bedford. This scholarship of $140 is awarded each year to a student who has taken his or her High School classes (Grades IX, X, and XI) in one of the High Schools of the District of Bedford and who enters the University or Macdonald College to take any full-time degree course. The award, which may be divided between two students, is based on the results of the High School Leaving marks and is awarded by the District of Bedford Graduates' Society upon the recommendation of the University Scholarships Committee.

Khaki University and Y.M.C.A. Memorial Scholarship Fund. The interest on this fund is awarded in scholarships by the Scholarships Committee subject to the following conditions:

1. That the scholarships may be held by undergraduates only;
2. that preference be given to sons and daughters of soldiers:
   (a) who served in the war of 1914-18
   (b) who served in the war of 1939-45.

Leonard Foundation Scholarships. The Leonard Foundation created in 1916 by the late Colonel Reuben Wells Leonard and Mrs. Leonard offers each year a number of scholarships tenable at schools, colleges, and universities in Canada, approved by the Foundation.

The scholarships are open to men and women. A student to be eligible must be "a British subject, of the white race, of the Christian Religion in its Protestant form, and of the full age of fourteen years".

The amount of the award will vary with the need of the winner.

Sons and daughters of the following are given preference in the selection of scholars:

(a) Clergymen, (b) School Teachers, (c) Officers, Non-Commissioned Officers, and Men, whether active or retired, of His Majesty's naval, military, or air forces, (d) Graduates of the Royal Military College, (e) Members of the Engineering Institute of Canada, (f) Members of the Mining and Metallurgical Institute of Canada.

Men and women returning from active service are also given preference over the non-preferred class.

The University is willing to endorse and forward with its recommendation applications of any candidates who may wish to apply through the University and are approved by it.

Such candidates must make their applications on forms to be obtained from the Registrar's Office, McGill University, and must return these to the Registrar before January 1st.

Other University Awards. In addition to the foregoing, there are a number of scholarships and bursaries which are administered by the University Scholarships Committee and which are open to students in any Faculty or School. Information concerning these will be found in the announcement of Scholarships, Bursaries, Prizes and Medals, a copy of which may be obtained from the Registrar, McGill University, Montreal, P.Q.

HOMEMAKER COURSE

His Excellency the Governor-General of Canada donates a bronze medal to be awarded to the Homemaker student who ranks highest in General Proficiency.

The Montreal Local Council of Women donates a prize in books to the value of $10 to be awarded to the student or students of the Homemaker Course showing outstanding ability in practical subjects.

Janet Morison Robb Bursary for Women. See page 4623.

McGill University

Montreal

Institute of Education

School for Teachers
School of Physical Education
Division of Graduate Studies

1957-1958

PUBLICATIONS

The following official publications are issued by the University and may be obtained from the Registrar's Office.

Announcements of Faculties and Schools as follows:

General Announcement
School Certificate Examinations
Scholarships, Bursaries, and Loan Funds
Faculty of Arts and Science (Degrees in Liberal Arts and in Pure Science. There is a separate Announcement for the School of Commerce.)
Faculty of Medicine
Faculty of Medicine Postgraduate Courses
Faculty of Dentistry
Faculty of Engineering (Degrees in Engineering and in Architecture.)
Faculty of Law
Faculty of Music
Faculty of Divinity
Faculty of Graduate Studies and Research
School of Commerce
Institute of Education
Library School
School for Graduate Nurses
School of Physical and Occupational Therapy
School of Social Work
Macdonald College (Faculty of Agriculture, and the School of Household Science.)
French Summer School
Extension Courses

The Directory of Staff (University administrative officers, standing committees, and officers of instructions. Limited distribution.)

The Calendar (Available for distribution only to libraries and officials of certain institutions.)

Institute of Education

The Institute of Education is under the administrative jurisdiction of the Faculty of Arts and Science

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Bursar

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J. H. Holton, B.Com. — *Secretary and Assistant Bursar*

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THE INSTITUTE OF EDUCATION

Macdonald College, P.Q.

The Institute of Education, under the jurisdiction of the Faculty of Arts and Science, offers courses leading to the degrees of B.Ed., B.Ed.(P.E.), and M.A.(Education), and to the diplomas of the Protestant Department of Education, Quebec. The School for Teachers at Macdonald College and the School of Physical Education are administered within the Institute and it also conducts programs of graduate studies and research. The work of the Institute is carried on at Macdonald College and on the Montreal campus of the University and is under the general supervision of the Teacher Training Committee, a statutory body established in 1907. This committee consists of the Director of Protestant Education, four persons appointed by the Protestant Committee of the Council of Education, the Principal of McGill University, who is ex-officio chairman, and two other persons appointed by the Governors of McGill University. The present members are:

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J. A. de Lalanne, C.B.E., M.C., B.Com., C.A.
J. P. Rowat, B.C.L., N.P.
Dean H. G. Dion
Dean H. N. Fieldhouse
The Director, Institute of Education

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DESMOND W. COLE, M.A. (U.B.C.), *Assistant Professor of English*

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NITA HAUGHTON (Mrs. J.)
E. G. KNIGHT, B.A.
GRAEME SMITH, B.A.
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HISTORICAL INFORMATION

The McGill Normal School was founded in 1857 under an agreement between the Government of the Province of Quebec and McGill University. In 1907, following a further agreement subsequently confirmed by an Act of the Legislature (7 Edward VII, Chapter 26), the School was moved to Ste. Anne de Bellevue where, as the School for Teachers, it became part of Macdonald College. Since that time it has operated as a school of the University under the jurisdiction and control of the Protestant Committee of the Council of Education and of the University.

At the time the School was moved from Montreal, the Macdonald Chair of Education was endowed in McGill College and a department was established for the preparation of candidates for the High School Diploma. In 1930 the Department inaugurated a course leading to the M.A. (Education). The administration of the School for Teachers and the Department was combined in 1954.

The McGill School of Physical Education began as a summer school in 1912 and a full year course was offered in 1916. In 1933 the curriculum was reorganized and a three year diploma course was offered and this was altered in 1945 to provide instruction for a specialized degree.

The Institute of Education was established in 1955 within the Faculty of Arts and Science. The work of the Institute is conducted partly in Montreal, partly at Macdonald College, and in a summer session conducted in cooperation with the Department of Education, Quebec.

COURSES OFFERED

COURSES	ENTRANCE REQUIREMENT	LENGTH OF COURSE
Faculty of Arts and Science		
B.Ed.	Arts or Science Junior Matriculation	4 years
B.Ed.(P.E.)	as for B.Ed.	as for B.Ed.
Central Board of Examiners (Quebec)		
High School Diploma	University degree and prerequisites	1 year
Intermediate Diploma	Senior High School Leaving	1 year
	or	
	Junior High School Leaving	2 years
Diploma in Physical Education	Junior High School Leaving	2 years
Elementary Diploma	Junior High School Leaving	1 year
Kindergarten Diploma	Junior High School Leaving	1 year
	(candidates may also register for B.Ed. course and specialize in Early Childhood Education.)	4 years

Faculty of Graduate Studies and Research		
M.A. (Education)	University degree of satisfactory standing and teaching diploma	2 summer and 1 winter sessions
Diploma in School Supervision	as for M.A.	as for M.A.

DESCRIPTION OF COURSES

Graduate Courses—M.A. (Education) and Diploma in School Supervision

These courses are intended to encourage teachers who have completed the basic academic and professional training to proceed with further graduate studies. The program is planned in three stages—two of which are given in five-week summer sessions with daily seminars. During the intervening winter session weekly seminars are held in each of four areas of concentration and the student may register either full or part time. A thesis is required for the degree of M.A. Summer sessions are given at Macdonald College, Winter sessions at McGill.

Undergraduate Courses—B.Ed. and B.Ed.(P.E.)

These courses are intended for students who wish to combine the academic courses required for the other degrees in the Faculty of Arts and Science with professional training leading to the diplomas issued by the Central Board of Examiners (Quebec). The academic curriculum is similar and equal in content to that required in the other degrees; the professional program, both in pedagogical studies and practice, is considerably more extensive that that in the regular diploma courses. Two years of the courses are given at Macdonald College, the third and fourth years at McGill.

The course in physical education follows closely the curriculum of the B.Ed. and other degrees in the Faculty. The professional emphasis is given through special courses in physical education and school practice. Students are also given instruction in methods of teaching general subjects.

High School Diploma Course

Graduate students, holding degrees from approved universities and with credit in the prerequisite subjects, may prepare for general and specialist teaching in the course leading to the High School Diploma of

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the Central Board of Examiners (Quebec). The course is arranged in three stages, the Autumn Term being devoted to general teaching in the upper elementary school. In the Winter Term, the student is expected to choose an area of concentration—Early Childhood, Primary, Elementary, Junior High School. During the Spring Term students are encouraged to devote special attention to the area or the subjects of their choice and those choosing the latter may select from the following grouping: English and History, Languages, Mathematics and Science, Physical or Biological Science. Eight weeks of the course are devoted to practice teaching and weekly periods are spent in the demonstration classrooms of Macdonald High School.

The subject prerequisites required by the Central Board of Examiners are:

First year: English (obligatory), and four of the following: French, Geography, History, Latin, Mathematics, one Biological or one Physical Science.

Second year: English and two courses continued from First year.

Candidates not having credit in the prerequisite subjects may submit their qualifications to the Central Board of Examiners for special consideration and it is possible to register for certain of the required courses in addition to the professional subjects. Candidates for Quebec diplomas are required to be Canadian citizens and to be free from physical defects likely to interfere with their duties as teachers. The course is given at Macdonald College.

Intermediate, Elementary, Kindergarten Certificate Courses

Two courses are offered for the Intermediate diploma; a one-year course for candidates holding the Senior High School Leaving certificate, and a two-year course for those wishing to combine the academic subjects of the first year in the university with extended professional training.

A two-year diploma course is offered for students wishing to develop special qualifications in physical education. The same academic requirements as those in the course leading to the B.Ed.(P.E.) are combined with training in general and physical education.

The course leading to the Elementary Diploma is offered for students with the Junior High School Leaving Certificate with a pass in ten papers. The course is mainly professional, but academic and tutorial courses are required in English and certain other subjects.

The Kindergarten course is intended for students who wish to qualify for work with young children. Special personal qualities and interests are expected of the candidates. The curriculum includes special studies in the theory and history of kindergarten and special extended practice in the demonstration kindergarten at Macdonald High School.

These courses are given at Macdonald College.

ADMISSION REQUIREMENTS AND PROCEDURE

The requirements for Junior Matriculation are as follows:

(a) The candidate must pass in each of the following papers in the University's Junior School Certificate and receive an average of at least 65% on the examination as a whole:

No. of Papers	Subject
2	English
1	General History
2	Latin or Greek
2	French; Latin; German; Spanish
2	Elementary Algebra and Elementary Geometry
1	*One* of the following optional papers: Biology, Botany, Chemistry, Drawing, Geography, Canadian or British History, Physics, Music, Intermediate Algebra, Trigonometry, *or* a foreign language not already chosen

OR

(b) The candidate must pass the following papers in the University's Junior School Certificate Examination and normally obtain at least 70% on the examination as a whole:

No. of Papers	Subject
2	English
1	General History
2	French *or* German (both papers of either language)
1	Elementary Algebra
1	Elementary Geometry
1	*One* of the following: Biology, Botany, Chemistry, Physics
2	*Options:* Either Latin *or* Spanish *or* French *or* German if not already chosen *or* any *two* of the following papers

MACDONALD UNIVERSITY LIBRARY

not already chosen: Intermediate Algebra, Trigonometry, Biology *or* Botany, Chemistry, Geography, Physics, Canadian or British History, Music *or* Drawing

Note: Candidates for entrance to the course leading to the degree of B.Ed. who present the Quebec High School Leaving Certificate as an alternative for McGill Matriculation may include the following among the optional papers in either (a) or (b): Agriculture, Home Economics, and North American Literature. Candidates for admission are also required to meet the Admissions Committee of the School for Teachers before their applications are approved. These interviews will be arranged during the first week of the session.

Requests for information and application forms should be addressed to:

The Director
Institute of Education
Macdonald College, P.Que.

Candidates for Quebec diplomas must make application to the Central Board of Examiners, Quebec. The necessary forms may be obtained through the Institute of Education and, when completed, should be addressed to:

The Secretary
Central Board of Examiners
Department of Education
Parliament Buildings
QUEBEC

All applications are to be submitted before June 30th each year.

FEES

The University reserves the right to make changes without notice in its published scale of tuition, board and room and other fees. Fees are not refundable except under special conditions.

1. TUITION FEES.

These fees include all the regular charges for registration, laboratories, libraries, Health Service, student activities.

M.A.(Education)	$400
Diploma in School Supervision	275
B.Ed. and B.Ed.(P.E.) 1st year	172

2nd year	$172
3rd year	450
4th year	450
Diploma Courses (High School, Intermediate, Elementary, Kindergarten)	172

2. SPECIAL FEES AND PENALTIES.

Student Teachers' Society (all students)	$ 1
Late registration (unless excused by the Director)	5
Late payment (after specified date)	2
Conferring degree or presentation of diploma in absentia	10
Duplicate diploma	10
Transcript of record	1
Supplemental examination, per paper	2

3. STUDENT ACTIVITY FEE

There are various student activities, such as the athletic associations, literary and debating societies, publications, class societies etc., which the students are expected to support. The affairs of these organizations are in the hands of the students themselves and their operations are financed from a student activity fee of $16.00 *which is included in the tuition fee.* The distribution of this fee is as follows: Students' Council $1.50; recreation centre $1.00; accident insurance $2.50; student organizations $11.00.

4. BOARD AND RESIDENCE (per session, exclusive of Christmas vacation).

Macdonald College	$460
Macdonald College non-resident charge for luncheon (optional), per term	35
McGill University residences (R.V.C., Douglas and Wilson Halls)	685

DIVISIONS OF THE INSTITUTE:

DIVISION 1: General Education
DIVISION 2: Foundations of Education
DIVISION 3: Methods of Instruction
DIVISION 4: Practice Teaching
DIVISION 5: Graduate Studies and Research
DIVISION 6: Physical Education

COURSES OF LECTURES:

Diploma requirements are indicated as follows:

(E) Elementary (K) Kindergarten (I) One-Year Intermediate

(FI) Freshman Class (SI) Sophomore, Two-Year Intermediate

(HS) High School

DIVISION I: GENERAL EDUCATION

Professors — FRANK K. HANSON, *Chairman*; C. WAYNE HALL; DAVID C. MUNROE; WILLIAM ROWLES (*Agriculture*)

Associate Professors — HENRY R. C. AVISON (*Agriculture*); ARTHUR M. HENRY

Assistant Professors — ERIC O. CALLEN (*Agriculture*); S. C. M. HAWKINS; T. HILLS (*Arts and Science*)

Lecturers — G. O. HENNEBERRY (*Agriculture*); A. ELIZABETH JAQUES; H. MORRISON

BIOLOGY

100. Botany: Introductory Botany 2 lects., 2 labs. a week. (SI)
Zoology: General Zoology 2 lects., 2 labs. a week. (SI)

CHEMISTRY

110. Inorganic Chemistry 3 lects., 2 labs. a week (S1) *Mr. Henneberry*

ENGLISH COMPOSITION

100c. Instruction and practice in English usage, oral and written composition, voice recording, and choral speaking. (E, K, I, FI, HS)
1 hour a week. *Mr. Morrison*

114. 1 lect., 1 lab. a week. (SI)

ENGLISH LITERATURE

1. Reading and discussion of a wide variety of selections with the intention of extending comprehension, deepening appreciation, and revealing the scope and significance of literature. (E, K)

2 hours a week, winter and spring terms. *Mr. Morrison*

116. English Literature. A study of forms in literature from Anglo-Saxon times to about 1880. (FI)

2 hours a week. *Professor Cole*

MODERN LITERATURE

225. Readings and discussions of work of British, Canadian and American writers from 1880 to the present. (I, SI, HS)

2 hours a week. *Professor Hall*

FINE ARTS

161. Fundamentals in drawing. Life drawing; elementary structural anatomy; composition. (SI)

4 hours a week.

FRENCH

1. Skills and drills required to teach French in Elementary and Junior High School grades; special emphasis on content of the Course of Study, Grades III-VII. (E, I, FI, HS)

1 hour a week. *Professor Hawkins*

100. French is used exclusively by lecturer and students in this course.

(a) *Travail oral:* The aim of this section of the course is to increase fluency, accuracy, and precision in speaking French. Assignments vary according to the interests and capabilities of the students.

(b) *Explication de textes:* A study, gauged to the achievement level of the students, of a novel of French Canada. The primary object is to master the story and to appreciate the atmosphere of French Canada as portrayed in the novel. Subsequently a detailed analysis is undertaken.

(c) *Cours de civilisation:* A survey course of French history; biographical and literary aspects are stressed.

3 hours a week. *Professor Hawkins*

GEOGRAPHY

211. The elements of physical geography. Scientific study of man's habitat:

(a) The origin and world distribution of landforms developed under different climates. Major earth resources: water, soils, and minerals.

(b) Climate and weather; physical processes and properties of atmosphere. The principal climatic belts of the world. Significance of climate as a factor influencing human settlement. (SI)

3 hours a week. *Professor Hills (Faculty of Arts and Science)*

HISTORY

100. European Civilization in Medieval and Modern Periods. (FI)

3 hours a week. *Professor Zagorin* (*Faculty of Arts and Science*)

LATIN

100. For those students who have completed at least two years of High School Latin. *Texts:* Hettich and Maitland, Latin Fundamentals, 3rd edition (Prentice-Hall); J. M. Milne, First Latin Reader (Harrap). (FI)

3 hours a week. *Mr. Vallillee* (*Faculty of Arts and Science*)

MATHEMATICS

111a. Plane Trigonometry. (FI)

112b. Algebra. (FI)

3 hours a week. *Professor Henry*

MODERN WESTERN CIVILIZATION

An integrated course outlining parallel patterns of development in history, music, literature, and the fine arts; geographical settings and influences in Europe and America, 1789-1955. (E, K, I)

3 hours a week. *The Staff*

MUSIC

1. Rudiments, tonic sol-fa, sight singing, dictation, conducting, voice, foundations. (E, K, I, FI, HS)

1 hour a week. *Professor Hanson*

100. *Prerequisite:* Rudiments of Music (Junior Grade, McGill or equivalent standing, or entrance examination).

(*a*) *History.* A survey of the development of musical styles, composers, and works for the period 1600-1900.

(*b*) *Form and Analysis.* Elementary principles of form. 17th and 18th century forms. Analysis of short piano works.

(*c*) *Harmony.* Transposition; key and time; harmonic analysis; melody harmonization (root and first inversion triads; dominant 7th in root form; cadential six-fours); dominant 7ths in all positions.

(*d*) *Aural training.* Intervals and chords; dictation in simple time; simple modulation; melodic analysis; sight reading. (SI)

3 hours a week.

PHYSICS

112. General Physics.
3 lects., 1 lab. a week. (SI) *Professor Rowles*

PHYSICAL EDUCATION

1. Indoor games, field sports, apparatus work, social and folk rhythms. (E, K, I, FI, HS)
1 hour a week. *Miss Nichol*

PHYSIOLOGY

201. The Physiology of man.
3 hours a week.

SCRIPTURE

1. The historical and literary background of the Bible. (E,K,I,FI)
1 hour a week. *Mr. Kerr and Mr. Doxsee*

TUTORIALS AND ENTRANCE TESTS

Students whose standing is unsatisfactory in any subject will be required to attend tutorial classes. It is recommended that all students prepare themselves for entrance tests which are conducted the first week of the session. The limits of the tests are as follows:

English: Parts of speech, case, sentence construction, clauses and phrases.

French (written): Translation (English to French) involving commonly used tenses; regular, "family", and irregular verbs; simple grammatical constructions and idioms. *Limits*—Grade XI (the greater part of the material on the level of Grades VIII and IX).

Music (written): Test One: lines and spaces, note values, rests, simple time accents, major keys up to four sharps and flats, knowledge of piano keyboard, tonic sol-fa equivalents for major scale. NOTE: students not having had musical instruction are advised to prepare for this test. *Test two:* compound time, grouping of rests, major and minor scales (harmonic and melodic), technical names for scale degrees, intervals. *References:* Ahrens, Rudiments of Music, Books 4 - 7 (Boosey & Hawkes).

Mathematics: Addition, subtraction, multiplication, and division of whole numbers and simple fractions; solution of simple problems involving the foregoing computations. *Limits*: Grade VIII. *Text:* Buswell, Brownell and John, Living Arithmetic (Ginn).

DIVISION II: FOUNDATIONS OF EDUCATION

Professors	D. C. MUNROE, *Chairman*
	C. E. SMITH
Associate Professors	A. B. CURRIE
	J. E. M. YOUNG
Assistant Professor	FRANCES E. CROOK

EDUCATION 1—Child Growth in School

A study of the general characteristics of physical, social, and emotional development in children.

Elementary educational and child psychology. Testing and measurement. Mental health and education guidance. (E, K)

2 hours a week. *Professor Young*

EDUCATION 100—Educational Psychology

A study of the general characteristics of physical, social, and emotional development in children. Elementary educational and child psychology.

Growth and development of children through adolescence. Psychology of learning. Individual differences. Growth and development of personality. Testing and measurement. Mental hygiene and educational guidance. (FI, I)

2 hours a week. *Professor Crook*

EDUCATION 200—The History of Education in Western Society

The history of education in Europe and America including a comparative study of the systems of public education in the countries of western Europe, in the United States, and in Canada. (E, K, I, SI)

3 hours a week. *Professors Munroe and Currie*

(*Offered also at McGill by Professor Smith*)

EDUCATION 301—Introduction to Teaching

(*Offered at McGill by Professor Young*)

EDUCATION 400—Philosophical Foundations of Education

3 hours a week. *Professor Smith*

EDUCATION 500G—Principles of Teaching

A study of teaching practice in various subject areas, with demonstrations and discussions of teaching technique.

2 hours a week, autumn term. *Professors Munroe and Smith*

EDUCATION 501G—Educational Psychology

A study of the general characteristics of physical, social, emotional and intellectual development, the psychology of learning and the growth and development of personality, with special emphasis on the problems of adolescence.

2 hours a week. *Professor Young*

EDUCATION 502G—**The Development of Educational Institutions**

A study of educational development and institutions in various countries, with special emphasis on the evolution of modern practices.

2 hours a week, winter and spring terms. *Professors Munroe and Currie*

DIVISION III: METHODS OF INSTRUCTION

Professor	C. W. HALL, *Chairman*
English	C. W. HALL
	PHYLLIS BOWERS
French	S. C. M. HAWKINS
Health and Recreation	DOROTHY NICHOL
Mathematics	FRANCES CROOK
Music	F. K. HANSON
Art	A. ELIZABETH JAQUES
Social Studies	A. B. CURRIE
Science	A. M. HENRY
Education 210	J. E. M. YOUNG
	A. B. CURRIE
Education 310	C. E. SMITH

EDUCATION 110—**General Classroom Practice**

(a) Curriculum organization, lesson planning, teaching media and methods, individualization of instruction, evaluation and testing, school law. (E, K)

(b) Audio-visual methods and materials, projection operation, the use of films and filmstrips, radio, models and displays, field trips, school law. (E, K)

(c) Organization and preparation of teaching materials for the Primary Department, or the Elementary School. (E, K)

2 hours a week. *The Staff*

EDUCATION 11

The origin and development of Kindergarten and Nursery School Programmes.

4 hours a week. (K) *Professor Bowers*

EDUCATION 111—**Subject Methods**

(a) Language Arts.

Language, reading, literature. (E)

2 hours a week, winter term. *Professor Hall*

(b) Language Arts.

Spelling, writing, childhood education. (E, K, I, FI)

3 hours a week, autumn or winter terms. *Professor Bowers*

(c) French. (E, I, FI, HS)

1 hour a week, autumn and winter terms. *Professor Hawkins*

(d) Health and Physical Education (E, K, I, FI, HS)

1 hour a week. *Miss Nichol*

(e) Mathematics. (E)

1 hour a week. *Professor Crook*

(f) Science. (E, K)

1 hour a week. *Professor Henry*

(g) Music. (E, K, I, FI, HS)

1 hour a week, autumn term. *Professor Hanson*

(h) Art. (E, K, I, FI, HS)

1 hour a week. *Miss Jaques*

(i) Social Studies. (E)

1 hour a week. *Professor Currie*

EDUCATION 112—**Classroom Methods and Management**

Curriculum development, lesson planning and general methods of instruction in basic subjects, school law.

5 hours a week. (I, FI)

EDUCATION 210—**The Child at School**

A study of the special problems of organization, instruction, motivation, discipline, and extra-curricular activities at representative grade levels in the elementary school, based on observation and the development of anecdotal records and case histories.

3 hours a week (1 lecture, 1 two-hour laboratory period).

(SI 3 terms, HS 1 term) *Professor Young*

EDUCATION 310—**Educational Testing and Measurement**

3 hours a week. *Professor Smith*

EDUCATION 410—**Special Curriculum Programmes**

3 hours a week.

EDUCATION 411—**General Instructional Practice** (For students in Music, and in the Teaching Option, B.Sc.(H.Ec.) course).

EDUCATION 510G—**General School Practice**

Curriculum organization, lesson planning, teaching methods and media, evaluation and testing. School law and administration. (H.S.)

7 hours a week

DIVISION IV: THE PRACTICE OF TEACHING

Associate Professor ARTHUR M. HENRY, *Chairman*

All members of the staff assist in the supervision of practice teaching.

EDUCATION 120—**Observation and Classroom Practice**

First year students

(a) Observation in suburban and rural schools (September).

(b) Observation and practice in schools of the Protestant School Board of Greater Montreal and Macdonald High School (November).

(c) Observation in demonstration classroom (Macdonald High School) and practice in suburban schools (January).

(d) Practice in schools of the Protestant School Board of Greater Montreal (March).

EDUCATION 220—**Practice in School and Community Programs**

(a) Observation and practice in selected rural schools (September).

(b) Advanced practice in suburban schools (May).

EDUCATION 320—**Testing and Remedial Teaching**

Individual and group testing and remedial teaching with Demonstration Staff.

EDUCATION 420—**Internship**

General school practice under selected principals and teachers in September and May.

EDUCATION 520—**Graduate Practice Teaching**

Eight weeks in suburban and city schools.

DIVISION V: GRADUATE STUDIES AND RESEARCH

Professors C. E. SMITH, *Chairman*
C. WAYNE HALL
F. K. HANSON
D. C. MUNROE

Assistant Professor FRANCES E. CROOK

Research Assistant MILES WISENTHAL

ENTRANCE REQUIREMENTS

(1) Honour Standing in the course leading to the B.Ed. Degree or Honour Standing in at least one continuation subject leading to the B.A. or B.Sc. degree in a university of recognized standing, the continuation subject to be chosen from the following: English, French, History, Geography, Mathematics, Latin, Physics, Chemistry, Botany-Zoology.

(2) Honour Standing in the course leading to the High School Diploma.

Candidates whose undergraduate studies do not meet these requirements may be admitted to a qualifying year and, if a sufficient number of such candidates apply, the necessary courses may be offered in a preliminary Summer Session.

COURSE REQUIREMENTS

First Summer

Seminar A: *Studies in Educational Thought:* an intensive study of the educational writings of representative philosophers.

Seminar B: *Methods of Educational Research:* a study of the methods used in educational research, including bibliography and statistics.

Winter Session

The candidate will select *one* of the four areas of concentration and proceed to the preparation of a thesis under the supervision of a Director of Research with whom a weekly seminar will be held.

Areas of Concentration:

Methods of Teaching Special Subjects
History and Philosophy of Education
Educational Psychology and Sociology
Educational Administration

Second Summer

Seminar C: *Educational Sociology:* an examination of public education in relation to community, family, culture, social process and social control.

Seminar D: *Modern Educational Practice:* a comparative study of school organization and classroom methods arising from modern theories of education.

McGILL CERTIFICATE IN SCHOOL SUPERVISION

The McGill Certificate in School Supervision is offered this year for graduates of a recognized university who wish to qualify for administrative or supervisory positions as principals, inspectors, subject supervisors, or county supervisors. Candidates for the Certificate would be required to attend two summer sessions and to participate in seminars and directed study during the intervening winter session. For details, apply to the Director of Summer School, Macdonald College, Quebec.

Course:

Summer Session, 1957: Seminars A and B as described above.

Winter Session, 1957-58: Monthly seminars based on case studies in administration.

Summer Session, 1958: Seminars C and D as described above.

DIVISION VI: PHYSICAL EDUCATION

Assistant Professors WINONA WOOD, *Chairman*
ROBERT E. WILKINSON
RUTH M. DUNCAN

EDUCATION 115—Physical Education in the Elementary School

This course deals with the methods and skills necessary for teaching physical education in the elementary school, including suitable gymnasium and outdoor activities based on fundamental principles of movement.

EDUCATION 125—Observation, Class-Room and Gymnasium Practice

Similar to 120 until March period, when duties will be partly in class-room and partly in gymnasium.

EDUCATION 215—Physical Education in the Junior High School

This course deals with methods and skills necessary for teaching physical education in junior high school, including rhythms, aquatics, individual and team games and gymnastics.

EDUCATION 225—Advanced School Practice

Similar to 200 in September, specialized in May.

EDUCATION 315—Physical Education in the Secondary School

This course deals with methods and skills necessary for teaching physical education in the secondary school, including team and individual games, gymnastics, dance, and testing and measurement.

EDUCATION 325—Observation and Remedial Practice

EDUCATION 415—School and Community Programs

This course deals with the problems of organizing school and community programs, including intra-mural and inter-scholastic athletics, community recreation, aquatics, camping, school and community health.

EDUCATION 425—Internship in general and specialized teaching.

THE STUDENT TEACHING COMMITTEE

D. E. POPE, *Protestant School Board of Greater Montreal*
PROFESSOR D. C. MUNROE, *Institute of Education* } *Co-chairmen*

PROFESSOR PHYLLIS BOWERS, *Institute of Education, Secretary*
MISS ROSALIE BRIGGS, *Protestant School Board of Greater Montreal*
MR. M. DAVIES, *Headmaster, Macdonald High School*
PROFESSOR A. M. HENRY, *Institute of Education*
MR. R. JAPP, *Protestant School Board of Greater Montreal*
MR. W. KYDD, *Principal, Maisonneuve School*
MR. J. G. LANG, *Protestant School Board of Greater Montreal*
MISS WINONA WOOD, *Institute of Education*
MRS. J. R. MARTIN, *Protestant School Board of Greater Montreal*
MRS. FLORENCE MORRIS, *Assisting Teacher, Summerlea School*
PROFESSOR HELEN NEILSON, *Director, School of Household Science*
MISS CHRISTINE RORKE, *Principal, High School for Girls*
DR. C. E. SMITH, *Institute of Education*
MISS MARGARET STEELE, *Assisting Teacher, Sinclair Laird School*
MR. R. STEEVES, *Protestant School Board of Greater Montreal*

ASSISTING TEACHERS, DIVISION OF PRACTICE TEACHING

Ahuntsic	Mrs. S. M. Harris; Mrs. K. G. Bell; Miss S. Adesserman; Miss M. Moscovitch
Alfred Joyce	Mrs. M. Daoussis; Mrs. M. B. Tabrett; Miss B. Pipersberg
Algonquin	Mrs. M. K. Trotter; Miss J. A. D. Smith; Mrs. M. Macdonald; Miss R. V. Miller; Mrs. E. J. Kyle; Mrs. M. J. McGaughey; Miss K. I. MacLean

Bancroft	Miss R. Katz; Miss E. Guttman; Miss S. Cohen; Miss J. Cockerline; Miss I. Fine; Mr. L. Tedford
Bannantyne	Miss C. Pitman; Miss M. Ford; Mrs. M. Forbes; Mrs. V. Villeneuve; Miss M. Mather
Barclay	Miss O. Neil, Mrs. T. Wolfe; Miss L. Kwiat; Miss M. Greenspoon; Mrs. H. Shutt; Mrs. M. Graham
Bedford	Miss K. Annett; Miss P. Protonotarios; Mrs. S. Yelin; Mrs. F. Malus; Mrs. B. McGurk
Bronx Park	Miss V. D. Waterhouse; Mrs. A. M. Hughes; Mrs. Pelley; Mrs. K. M. Robbins
Carlyle	Miss M. Allingham; Miss J. Norton; Miss N. M. Murray; Miss B. Steer; Mrs. P. Joyce
Cartierville	Mrs. R. Wahlberg; Mrs. G. Talbot; Mrs. M. Shields; Mrs. A. Hamilton
Central Park	Mrs. A. G. Stone; Miss J. J. D. Couttie; Mrs S. A. Simpson; Mrs. G. Beddows
Connaught	Miss E. E. Farwell; Miss G. A. Assaly; Miss M. E. Whitmore; Miss L. R. Secombe; Mrs. L. C. Brooks
Coronation	Miss G. M. Garred; Mrs. G. E. Killen; Miss L. Cutler; Miss B. Lecker
Cote des Neiges	Mrs. T. McFall; Miss A. Clark; Mrs. E. Hardie
Courtland Park	Miss K. Gilmour; Mrs. V. Leslie; Mrs. L. Flood; Mrs. F. Stevenson; Mrs. I. Woodin
Crawford Park	Miss A. Eliason; Mrs. G. Mulock; Miss A. Taylor
Devonshire	Miss L. Garmaise; Miss D. Peretz; Mrs. E. Morrill; Miss B. Rosen; Miss F. Godel
Dorval Gardens	Miss A. Williamson; Mrs. J. Dean; Mrs. M. Davis; Mrs. J. Garrow
Drummond	Mrs. L. Jenkins; Miss A. Wise; Miss G. Quinn; Miss Reid; Miss J. Wattenberg
Dunrae Gardens	Mrs. M. G. Sevigny; Miss A. L. Hatfield; Mrs. J. W. Boyd; Miss C. F. Craib; Miss A. J. Snape
Edward VII	Miss J. Rollinson; Miss D. Aronson; Miss W. MacIntosh; Mrs. P. Marion; Miss C. MacKay
Elizabeth Ballantyne	Miss T. Layzell; Miss E. Cushing; Miss O. Ginn; Mrs. D. de Cambra; Mrs. M. Layfield

Elmgrove	Mrs. M. Willard; Miss B. McDougall; Miss D. Playfair; Miss J. Gonder; Mrs. E. Thompson
Fairmount	Mrs. M. Eaton; Miss I. Britan; Miss F. Groper; Mrs. S. E. Segal; Miss R. Saltzman
Gardenview	Miss H. Dullege; Mrs. M. Crawford; Mrs. A. Rubenstein; Miss R. Kravitz
George Esplin	Miss G. Glasspoole; Miss M. L. Tarte; Mrs. D. Rouleau; Mrs. M. Hammond
Guy Drummond	Miss K. Whyte; Mr. J. Russell; Mrs. E. Mackay; Mrs. J. Aldridge
Hampstead	Miss M. Wesbrook; Mrs. K. Bailey; Mrs. B. O'Neill; Miss M. Davies
Herbert Symonds	Mrs. C. Greig; Miss C. Beer; Mrs. C. Hayes; Miss E. Martin; Miss M. J. Taylor;
Iona Avenue	Mrs. E. Mullins; Miss J. Reid; Miss M. Rissman; Miss M. Freedman; Mrs. R. Booth; Miss P. Brewer; Miss J. H. Brown
Kensington	Mrs. O. Cloutier; Miss P. Giles; Miss M. Rohrer; Mrs. E. Black
King's	Mr. L. Kerr; Miss M. McCormick; Miss E. Langstaff
Logan	Miss J. C. McInnes; Miss M. A. McGerrigle; Mrs. E. E. Salisbury; Mrs. R. Zinman; Mrs. R. Burke
Lorne	Mrs. M. Marchment; Mrs. M. Newcombe; Miss M. Smith; Miss P. Segal
Maisonneuve	Miss Tjelios; Miss J. Ewing; Miss J. Hamilton; Miss M. McGeorge; Miss D. Habib
Maple Hill	Mrs. B. Murray; Mrs. I. Lozinski; Mrs. L. Dewhurst
Meadowbrook	Mrs. M. Millar; Miss B. Nadler; Miss M. Jamieson; Miss H. McLaglan
Monklands High	Mr. E. A. Robinson; Mr. R. J. Williams; Miss Mary Xenos
Montreal West High	Miss Joan Rutherford; Miss Marilyn Ward; Miss Ruth Hill
Mountrose	Miss J. Emo; Miss H. Uszkay; Miss D. Segal; Miss J. Reiman

Nesbitt	Mrs. L. Hedges; Miss J. J. Emerson; Miss R. Schlachter; Miss S. Ripsman; Miss C. A. Salonin; Miss A. Tkacz; Mr. A. Sosnicky
Ogilvie	Mrs. A. E. Mitchell; Miss J. Rosenthal; Miss B. Copoloff
Parkdale	Miss E. Easton; Miss L. Keddy; Mrs. E. Medland; Mrs. J. Mackinnon
Peace Centennial	Miss E. Zahalan; Mrs. E. Allen; Mrs. E. McKelvey; Miss J. Emo; Miss E. Goodman
Queen's	Mrs. M. Knight; Mrs. M. M. Papke; Mrs. J. C. Buckle; Mr. R. McGrail
Riverview	Mrs. A. Hardey; Miss M. Kent; Mrs. D. Parnell; Miss A. Scroggie; Mrs. D. Stopps; Miss M. Uyeda
Rosedale	Mrs. H. V. Sinfield; Mrs. B. Ewing; Miss C. M. Darbe; Mrs. E. R. Cann; Miss L. G. Tait; Mrs. S. Hershorn; Miss B. Sifton
Roslyn	Mrs. F. M. Stewart; Mrs. R. Thorne; Mrs. S. J. Miller; Miss B. K. Walker; Mrs. M. J. Robertson; Mr. W. E. Bowker; Mr. E. R. Start
Royal Arthur	Miss I. Appulgliese; Mrs. M. Corbett; Miss G. Baum; Mr. E. Pedersen
Royal Vale	Mrs. E. Green; Miss I. Ross; Miss E. Chaffey; Mr. J. Arbuckle
Russell	Mrs. K. A. Dickinson; Mrs. S. MacLellan; Miss N. Anderson
Sarah Maxwell	Miss Marlene Spevack; Mrs. Ruby McKelvey; Mrs. Ileana Burns
Sinclair Laird	Miss M. Steele; Miss G. Hughes; Miss P. Cohos; Miss U. Wardleworth; Mrs. L. Fothergill; Miss J. Druckman
Sir Arthur Currie	Miss H. M. Cockerline; Miss E. C. Hudson; Mrs. E. F. Boyd; Mrs. M. Granda; Miss D. Richardson; Mr. H. Wharton; Mrs. S. I. Clarke
Strathcona	Mrs. J. F. Salts; Miss C. E. Simpson; Mrs. E. A. Cleland; Miss D. E. Labelle
Strathearn	Mrs. E. V. Kwiatkowski; Mrs. M. Mullally; Mrs. C. M. M. Pellowe; Miss E. Kessler
Summerlea	Miss M. Kenworthy; Mrs. G. Walker; Mrs. B. Champion; Miss M. Martin; Mrs. H. Stewart

Tetreaultville	Mrs. M. Stanley; Miss F. Rauch; Mrs. O. Barlow
Van Horne	Miss M. M. E. Hodge; Miss S. Fine; Miss S. Cohen; Mrs. K. O. Patterson; Mrs. B. M. Wyatt; Mrs. A. L. Goldstein; Mrs. R. D. Hollander; Miss S. Klamka
Victoria	Miss B. Smirle; Mrs. I. Jones; Miss P. Schwartz
Westbrook	Miss B. J. Parsons; Miss B. E. Smith; Miss O. M. Bentowski; Miss L. Silverman
Westminster	Mrs. E. B. Vallance; Mrs. R. Feldman; Miss Murdock
Willingdon	Mrs. M. A. Slee; Mrs. M. Cram; Mrs. M. Benson; Miss Doreen Jones; Miss A. Ramus; Miss E. R. Roy
Woodland	Mrs. M. Daigle; Mrs. P. Brooks; Mrs. M. Coffin; Mrs. E. Maher; Miss V. Starke; Mrs. N. Jessop

MACDONALD COLLEGE

GENERAL INFORMATION

Macdonald College, Ste. Anne de Bellevue, Que., is twenty miles west of Montreal, on the main lines of the Canadian National Railway and the Canadian Pacific Railway, and on provincial highways No. 2 and No. 17. The Anglican Church of Canada, the United Church of Canada and the Roman Catholic Church in Canada all have churches in the town. Students of all religious denominations are free to enter Macdonald College. A branch of the Bank of Montreal serves the community.

The College has its own post office and mail should be addressed simply Macdonald College, Que. The address for freight and express parcels, and for telegrams, is Macdonald College, Ste. Anne de Bellevue, Que.

Key telephone numbers are: Switchboard (connecting all departments), Ste. Anne de Bellevue 5335; Brittain Hall, 9082, 9086; Stewart Hall, 9008, 9095; Main Building Dormitory, 9003, 9088; Harrison House, 4407.

FACILITIES

Sir William Macdonald planned so well for future needs that the facilities of Macdonald College for instruction in Agriculture, Home Economics and Teaching are still provided almost entirely in the buildings constructed in 1905. The picturesque brick buildings and red-tile roofs of the Chemistry, Biology, Agriculture and Main Buildings, together with Stewart and Brittain Halls (residences for women and men respectively), and the well laid out grounds on the shore of Lake St. Louis, combine to provide a campus which is attractive and functional.

Laboratory and lecture rooms are exceptionally well supplied with modern and efficient teaching facilities, while the reference section of the Library and the research laboratories associated with the various science departments are well equipped to permit the vigorous investigation of problems connected with postgraduate studies.

The land associated with the College consists of approximately 1600 acres, at the western end of the Island of Montreal, and is largely in the Parish of Ste. Anne de Bout de l'Isle, Jacques Cartier County. The campus proper consists of about 200 acres south of the Metropolitan Boulevard.

The Morgan Arboretum established in 1947, has 700 acres of woodland devoted to the study of woodlot management and the place of the woodlot in the Eastern Canadian farm economy. About 100 acres have been planted in reforestation projects. In addition, the Arboretum, in spite of its short history, has Canada's best collection of examples of all Canadian and many foreign species of trees and shrubs of interest from the point of view of pulpwood, timber and landscaping.

THE MACDONALD COLLEGE LIBRARY

The library and reading room are centrally located in the Main Building, occupying the ground floor of an annex leading off the main hall.

The present stack-room has accommodation for about 25,000 volumes, and the choice of books has been directed towards bringing together the best of modern literature on subjects of the curriculum of the College.

The Walter M. Stewart Collection includes biography, history, travel, science, etc. This collection has been purchased through the generosity of Walter M. Stewart, of Montreal.

RESIDENCE

Men students in residence live in Brittain Hall, named in honour of Dr. W. H. Brittain, Vice-Principal of Macdonald College from 1935 to 1955. The residence for women is named Stewart Hall in honour of Mr. and Mrs. Walter M. Stewart, long-time friends and benefactors of the College. A subsidiary residence for women students is also maintained on the third floor of the Main Building.

Macdonald College does not have residence accommodation for all the students who enroll, and acceptance of the application for admission to a course of study does not imply that residence accommodation will be available.

Any student wishing to live in one of the College residences must apply for residence accommodation well in advance of the opening of the session. Forms of application for residence accommodation are sent with the regular forms of application for admission to the course.

A deposit of $25.00 must accompany the application for accommodation. If the application is accepted the deposit will be deducted from the payment due on entrance. The College guarantees to refund the deposit if the application is refused, or is cancelled by the applicant at least three week prior to the date of registration for the course concerned.

All students who have been in residence during the session must apply for re-admission for the following year, and make a deposit of $25.00, before leaving at the end of the session, should they wish to have space reserved for them. This deposit will be refunded if the application is not accepted, or is cancelled by the applicant three weeks prior to the date of registration for the course in which he or she is enrolled. If the application is accepted, the deposit will be deducted from the payment due on entrance.

A number of rooms are available in private homes in Ste. Anne de Bellevue; a list of these may be obtained from the Registrar's Office. Most are located within a few minutes' walk of the College. Students rooming out may have all their meals in the College dining room and participate fully in all regular College activities.

All students, whether living in residence or not, are registered in one or other of the Halls of Residence, as well as in their respective Faculties or Schools.

Students of the Institute of Education who live in Montreal may apply for permission to commute daily between Montreal and the College.

Due to the necessity of accommodating conventions and short courses during the summer months, resulting in a limited time available for repairs and cleaning, no student will be admitted to residence before the date set for registration in the course for which he or she has been accepted. Nor may a student remain in residence after the session ends, nor during the Christmas holidays. Exceptions to this rule will be made in the case of certain student officers whose duties require their presence before the opening date, members of the football team who have been accepted for pre-season training, students preparing for supplemental examinations and other students under exceptional circumstances by permission of the Warden.

Students who have reserved accommodation and who are returning early to write, or prepare for, supplemental examinations, may enter

residence, by special permission, not earlier than one week before the date of their first examination. Application for early accommodation must be sent with the application for supplemental examination, before September 1st. The charge for room and board for this period will be $12.50 for a week or any part of a week.

Students may not invite relatives or friends to stay overnight in the residence without permission from the Housekeeper or Warden of Residence.

For the admission of visitors to the Dining Room tickets must be purchased at the Dietitian's Office, Stewart Hall, at the Administration Office in the Main Building, or from the doorman on duty.

Students are held responsible for the care of their rooms and of their furnishings.

Students are recommended to mark clearly, before coming to the College, all articies of wearing apparel, sheets, pillow cases, etc.

Detailed regulations are printed separateiy and issued to students after arrival.

ROOM FURNISHINGS

Bedrooms are furnished with closets, beds, mattresses, blankets, pillows, and the necessary furniture.

Each student is expected to provide his or her own laundry bag, toilet soap, drinking glass, four sheets, about 90 inches long, 60 inches wide; two pillow covers, 34 inches long, 20 inches wide; hand towels and bath towels; flashlight.

Each room is provided with picture moulding. Students are permitted to bring rugs, pictures, etc., but are not allowed to drive tacks or nails into walls or woodwork, nor to paste pictures on the walls.

Women students are required to provide sash curtains and curtain rods for the windows in their rooms.

CONDUCT AND ATTENDANCE

The general responsibility for the maintenance of discipline in each residence is vested in a Warden, but, through a system of self-government, students are encouraged to accept the greatest possible

amount of responsibility in connection with their own affairs. Enforcement of necessary regulations, exaction of disciplinary measures, and regulation of conduct *in and out of residence*, is largely in the hands of a House Committee for each residence, elected by the students from among their own number.

Matters of discipline connected with or arising from the general arrangement for teaching within a Faculty or School are under the jurisdiction of the Dean of the Faculty or Director of the School concerned.

Students may be admonished by a professor or instructor for improper conduct and may be reported to the Dean or Director concerned. If considered advisable, such conduct shall be reported to parents or guardians.

Students found guilty of immoral, dishonest, or other improper conduct, the violation of rules, or wilfully causing damage to persons or property, shall be liable to College discipline, which includes the power of expulsion (subject to the approval of the Senate of McGill University), of suspension from classes or residence (also in the case of women students, confinement to residence), of exclusion from all College functions, including class or society meetings, plays, dances, etc., of disqualification from competing for honours or prizes, and of levying fines. Fines may also be imposed or assessments made for damages made by individuals or groups of students.

Bringing liquor into the College is considered a serious breach of discipline, and students who indulge in the use of liquor, or who frequent places where it is sold, may be required to withdraw from the College.

Students are not permitted to bring firearms into their rooms, nor is the use of firearms allowed on the College grounds.

Women students are forbidden to go on the river—winter or summer. "Hitchhiking" is not permitted.

Gambling is not permitted on College property.

Unauthorized entrance to Stewart Hall or subsidiary residences by men students, or to Brittain Hall by women students, will result in immediate suspension of the guilty persons, followed by expulsion proceedings.

Students are requested not to make application for additional leave either before or after holiday periods, as such leaves can only be granted in case of illness or other exceptional circumstances.

For late registration or for absence from classes on the last day before or the first day following a holiday period, there will be a penalty of $3.00 for each day or part of a day.

During illness students are under the direction of the Medical Officer and may not leave the residence or infirmary without his permission.

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students. Absences can only be excused on the ground of necessity or illness, of which proof may be required. Special attention is called to the fact that the completion of all laboratory work is obligatory and the opportunity to make up work missed can only be provided in the case of properly excused absences.

The College has the power to refuse examinations to those students who persist in absenting themselves from classes without permission.

Any student who is unwilling to submit cheerfully to the restrictions of college life, whose conduct does not furnish satisfactory evidence of diligence and earnestness of purpose, or whose work is definitely unsatisfactory, may be placed on probation, or may be required to withdraw from the college.

Degrees of probation are as follows:

Probation 1 The student is permitted to remain on trial, subject to satisfactory work and conduct.

Probation 2 The student is not allowed to participate in competitive events, nor to take part in plays or other activities involving undue loss of time.

LEAVE OF ABSENCE

WOMEN STUDENTS

In order to avail themselves of leave privileges, women students in residence must present at the beginning of the session a form signed by parent or guardian giving general permission or specifying the manner in which leave may be spent. Forms for this purpose, and details of leave allowances, are sent to all students.

The amount of leave permitted is based on the student's year. A student is entitled to the leaves accorded those in her year only while in good academic standing. Conditioned students in the Second, Third or Fourth year have the allowances granted to the year below.

Except in cases of emergency, telephone messages or telegrams requesting leave of absence for women students will receive no consideration.

Students wishing to stay at hotels, lodges, etc., while on leave, or to go on skiing trips, are required to have the written consent of their parents to do so.

On no account shall a student be absent from college without having complied with the regulations regarding registration of leaves, or without the knowledge and consent of the Warden. Absence from College without permission is a serious offence which renders the student liable to instant suspension or dismissal. If prevented from returning after an absence, due to illness or other cause, students must advise the Warden immediately, and these students must report to the Warden's office immediately upon their return.

Students are urged to have dental work attended to before entrance, though dental appointments will be allowed in cases of urgency. Appointments to visit a physician are allowed on production of a letter from the physician indicating the date and hour of the appointment.

All correspondence regarding the conduct of women students in residence should be addressed to The Warden, Stewart Hall, Macdonald College, P.Q.

MEN STUDENTS

First Year Diploma and Degree students must obtain permission from the Dean should they wish to have overnight leave of absence. All students who expect to be absent from the College should leave some record of their movements.

VISITORS

Women students in residence may receive visitors any day between the hours of 4.00 and 6.00 p.m. and from 7.00 until 9.00 p.m., and at any time up to 11.45 p.m. on Saturdays. Visitors may be shown over the Residence only on Saturdays, except in the case of parents or friends from a distance. Guests may be entertained in the Reception Rooms and the Common Room; only parents and women friends may be shown students' bedrooms.

Women visitors to Brittain Hall may be entertained in the Reception Rooms only.

MISCELLANEOUS EXPENSES

STUDENT ACTIVITIES

There are various student activities at the College, such as the athletic associations, literary and debating society, publications, class societies,

etc., which the students are expected to support. The affairs of these organizations are in the hands of the students themselves and their operations are financed from the student activity fee which is charged all undergraduate and graduate students, and all partial students registered for three or more full courses. These fees are listed on page 4812.

LAUNDRY SERVICE

Weekly laundry service at moderate prices is provided by a Montreal laundry to which students may send their personal washing, sheets, pillow covers, and towels. Printed lists will be furnished, two copies of which, properly filled out, must accompany each parcel. Fully equipped laundry rooms are also provided in each residence for students' use.

HEALTH SERVICE

The College Health Service provides medical examinations for all men and women students at the beginning of each session. The examination for students entering for the first time includes a complete clinical check, together with an X-ray of chest and routine laboratory procedures.

All examinations are by appointment after registration. The examination is compulsory for all students. Any student who fails to keep this appointment is subject to later examination for which a charge of $2.00 is made. Any student who fails to have a medical examination by the Health Service is subject to disciplinary action by the University authorities.

Medical and nursing attendance, major operations and illness excepted, will be provided to all students while in attendance at the College.

If a student's admission to a city hospital is ordered by the College Medical Officer, one half of all public ward charges is paid by the College, provided that the total obligation assumed by the College does not exceed $125.00 in any one session for any one student. Should a student desire private accommodation, the difference in cost must be borne by him.

This contribution towards hospital expenses is made only when the illness or other condition requiring hospital treatment was not present or was unknown or undetected at the time of admission.

During the session, all students are covered by a group accident insurance policy, the premium for which is included in the student activity fee.

BOOKS

The prescribed textbooks, and classroom and laboratory supplies, may be purchased at the College Book Shop.

APPLICATION FOR RESIDENCE ACCOMMODATION

Students wishing to live in residence at the College must apply for residence accommodation before June 30th. A form for this purpose is sent with the form of application for admission.

COMMUTING SERVICE

Students whose homes are in Montreal may commute daily to the College on busses provided by the Protestant School Board of Greater Montreal. The commuting charge is $7.00 per month; the charge for the noon meal at the College is $35.00 for each of the three terms. Students wishing to take advantange of this service should make reservations before the start of the session with the Protestant School Board, 3460 McTavish St., Montreal. No student who has been accepted in residence will subsequently be given permission to commute.

McGILL UNIVERSITY

Information regarding admission, residence, health service etc., will be found in the bulletin of *General Information* which is enclosed with this Announcement.

SCHOLARSHIPS, BURSARIES, LOAN FUNDS

A list of scholarships, bursaries and student loan funds may be obtained on application.

SPECIALIST PROGRAMS

Agricultural Specialist Certificate Course (see Announcement of Macdonald College), **Household Science Specialist** (see Announcement of Macdonald College), **Music Specialist** (see Announcement of Faculty of Music).

Military Training

CANADIAN OFFICERS TRAINING CORPS

McGILL UNIVERSITY CONTINGENT

GEN. THE HON. A. G. L. MCNAUGHTON, C.H., C.B., C.M.G., D.S.O.
Honorary Colonel

LT.-COL. J. M. MORRIS, M.C., V.D. — *Honorary Lieutenant Colonel*

LT.-COL. W. A. CAMPBELL — *Commanding Officer*

MAJOR J. B. BIRD — *Second-in-Command*

CAPTAIN W. E. HAVILAND
Officer Commanding Macdonald College Detachment

MAJOR A. B. MACKENZIE, R.C.A. — *Resident Staff Officer*

1. GENERAL

The McGill University Contingent C.O.T.C., is the oldest university unit for the training of army officers in North America, having been officially established on 1st November 1912. At present, its maximum authorized establishment is 11 officers and 201 officer cadets. Its offices and mess are located in the Sir Arthur Currie Memorial Gymnasium-Armoury.

The purpose of the training it offers is to qualify a selected number of undergraduates for a commission in one of the corps of the Canadian Army (Regular or Militia). Applicants may choose the corps in which they wish to be commissioned, within limits set by the educational requirements of certain corps and by the number of vacancies available in each corps.

2. ELIGIBILITY

Any male student may apply provided that:

(a) He is a Canadian citizen by birth or naturalization, or a British subject resident in Canada possessing the certificate of a landed immigrant. A student visa is not acceptable.

(b) He is at least 17 years of age, and able to complete 2 years of training before reaching the age limit of the corps for which he is applying.

(c) He meets the physical requirements of the corps for which he is applying.

(d) He is registered as a Regular Undergraduate.

(e) He is able to complete two summers' training at an army training centre before graduation from the University unless he is certain that he is going to take graduate work.

All applicants will be required to state in their written application that they are willing to complete the minimum programme of training, if accepted.

3. TRAINING

The training consists of:

(A) WINTER (THEORETICAL) TRAINING

A minimum of two Theoretical Phases of training must be completed; a third Theoretical Phase is optional. This third Theoretical Phase is prerequisite to the third Practical Phase. The training consists of lecture-courses given on one night a week during the winter, as follows:

First Theoretical Phase (First Winter)
- Introduction to the Army
- Current Affairs

Second Theoretical Phase (Second Winter)
- Tactics
- Current Affairs

Third Theoretical Phase (Third Winter)
- Military Geography
- Military History
- Current Affairs
- Visits to Militia Units

(B) SUMMER (PRACTICAL) TRAINING

A minimum of two Practical Phases of training must be completed; a third Practical Phase is optional, but highly recommended. Each phase consists of up to 22 weeks' training during the summer at the training centre of the corps in which the applicant is enrolled. These centres are located throughout Canada from Valcartier, Quebec, to Victoria, B.C.

In addition, selected student officers in their Third Practical Phase proceed annually to train with the Canadian Army Brigade in Germany.

4. STATUS AND PAY

Applicants who are accepted are given the rank of Officer Cadet and the status of Second Lieutenant. The rate of pay for Officer Cadets during the Practical Phases of training in the summer is $210.00 a month. In addition, board, quarters, medical care, and transportation to and from the training centre are provided free.

Officer Cadets receive $3.50 for each parade night attended during the winter up to a maximum of $112.00 (16 days' pay).

5. QUALIFICATION AND COMMISSIONING

Officer Cadets who complete the First and Second Practical and Theoretical Phases of training are qualified for the rank of Second Lieutenant in the Militia. The Completion of the Third Practical and Theoretical Phases as well qualifies an Officer Cadet as Lieutenant in the Militia or in the Regular Army upon graduation from a degree course.

When the necessary military training requirements have been completed, Officer Cadets may apply for commissions in the Regular Army or in the Militia. If they do not choose either of these alternatives, they will be posted in commissioned rank to the Supplementary Reserve.

6. INFORMATION, APPLICATION, AND SELECTION

Requests for further information and applications to join should be made at McGill to the Resident Staff Officer, C.O.T.C. Office, Sir Arthur Currie Memorial Gymnasium-Armoury, 475 Pine Avenue West, and at Macdonald College to Captain W. E. Haviland, Department of Agriculture.

Applicants who satisfy the requirements listed in Section 2 will be asked to appear before the University C.O.T.C. Selection Board.

Information can also be supplied by the Resident Staff Officer about the programme under which university students may have their education costs and living expenses subsidized by the Department of National Defence, under the Regular Officer Training Plan (R.O.T.P.).

McGILL UNIVERSITY NAVAL TRAINING DIVISION

Commanding Officer

COMMANDER V. M. HEAYBERD, CD, R.C.N.(R)

University Naval Training Divisions have been established to select and train suitable male undergraduates attending Canadian Universities and Colleges for Commissioned Rank in the Royal Canadian Navy. The program enables the Canadian Navy to build up a Reserve of trained Commissioned Officers of high calibre. Applicants must be 17 years of age, medically fit, and have a sound academic record. At present, the U.N.T.D. administers locally the Regular Officer Training Plan, by which selected candidates are subsidized at University at Public Expense (further details of R.O.T.P. on application).

Students entering the U.N.T.D. remain on a probationary basis until January of the First Winter, at which time a final selection is made. Normally, recruiting is limited to First and Second year students, and ends before November.

REQUIREMENTS FOR COMMISSION

Cadets who successfully complete the U.N.T.D. Course of three Winters and two Summers (minimum) receive an Acting Commission in the Royal Canadian Navy (Reserve). When a University degree is attained, the candidate is confirmed in the rank of Sub-Lieutenant.

Winter training consists of instruction in HMCS "Donnacona" one evening per week. Summer Training requires 14 weeks at either "Halifax" or "Esquimalt", ashore and at sea in one of Her Majesty's Canadian Ships.

Cadets rate of pay is $210.00 per month while in Active Training. During Winter Training, one drill night is considered the equivalent of one half-day's pay at the rate of $210.00 per month. Uniforms, rations, quarters, transportation, medical care are also provided.

NATURE OF TRAINING

Instruction is both theoretical and practical in nature. During the First year, all Cadets undergo the same training. In subsequent years, the Cadet's instruction is kept as closely allied as possible to his University studies. Cadets are thus offered choice of Branch in the Naval Service, in which they then specialize. Students of every Faculty except Dentistry are eligible.

Shore-side training is augmented in the fullest extent possible by sea experience. In recent Summers, U.N.T.D. Cadets have visited such places as Gibraltar, Ireland, Great Britain, Southern France, Scandinavia, Alaska, California, Hawaii, Pearl Harbour and the Fiji Islands.

In addition, emphasis is placed on sports of all descriptions, with special stress on sailing.

For further information, apply to:

Staff Officer, U.N.T.D.,
H.M.C.S. "Donnacona",
1475 Drummond Street,
Montreal, P.Q.

PLateau 9022, local 23.

R.C.A.F. McGILL UNIVERSITY RESERVE SQUADRON

WING COMMANDER C. D. SOLIN — *Commanding Officer*
SQUADRON LEADER V. ROLFE, D.F.C., C.D. — *Resident Staff Officer*

1. OBJECT

The RCAF has established the McGill University Reserve Squadron on the campus in order to provide an annual flow of university trained Officers into the Regular and Reserve components of the RCAF.

2. ELIGIBILITY—University Reserve Training Plan (URTP)

To apply for enrolment a student must be:

Between the ages of 17 (18 for women) and 29.

Able to complete three summers of RCAF training prior to graduation if applying for the Technical List.

Able to complete at least two summers of RCAF training prior to graduation if applying for the other training lists.

Medically fit to RCAF standards.

3. TRAINING BRANCHES

Each fall, enrolments are made for training in the following branches:

TECHNICAL—Aeronautical Engineering, Armament, Construction Engineering, Telecommunications, Mobile Equipment Engineering.

OTHER —Accounts, Administration, Chaplain, Education, Fighter Controller, Flying Control, Ground Defence, Ground Observer, Legal, Medical, Food Services, Special Service (Recreation), Security, Supply.

4. TRAINING

(a) WINTER TRAINING—This program, which takes place at the university, normally consists of a weekly two hour parade. Parades commence in October and terminate in March and are phased so that they do not interfere with academic studies and examinations. This training is designed to familiarize URTP personnel with the duties and responsibilities of junior officers and to give a general knowledge of the RCAF, and its role in defence.

(b) SUMMER TRAINING—All successful candidates for the URTP attend Officers' School in the first half of the first summer. Those who are enrolled in a branch for which a course is conducted then proceed on formal training while the remainder receive supervised employment at stations across Canada. Each year a number of Flight Cadets may be selected to take their third summer at an overseas unit.

5. STATUS

Accepted students are enrolled with the training rank of Flight Cadet.

On successful completion of training, Flight Cadets will be commissioned as Pilot Officers. Upon graduation, Pilot Officers are eligible to transfer to the RCAF Regular, the Auxiliary, the Primary Reserve, or the Supplementary Reserve with the rank of Flying Officer.

6. PAY

DURING SUMMER TRAINING

$210 per month.

Rations, quarters, transportation, uniforms and medical attention are provided free.

DURING THE WINTER TRAINING PERIOD

Up to 16 days pay per winter, plus pay for any approved special duty.

7. APPLICATION FOR ENROLMENT

Apply to the RCAF Resident Staff Officer, Room 10, Sir Arthur Currie Memorial Gymnasium or phone BE. 1932.

Academic Dress

Undergraduates are entitled to wear a plain stuff gown, not longer than half way between knee and ankle, with round sleeves cut above elbow.

Bachelor of Arts—Black stuff gown, falling down below knee with full sleeve cut to elbow and terminating in a point (similar to that of the Cambridge B.A.); hood, black silk, lined with pale blue silk and edged with white fur.

Bachelor of Architecture—The same gown as Bachelors of Arts; hood, black silk, lined with white silk and edged with white fur.

Bachelor of Civil Law—The same gown as Bachelors of Arts; hood, black silk, lined with French grey silk and edged with white fur.

Bachelor of Commerce—The same gown as Bachelors of Arts; hood, black silk, lined with purple silk and edged with white fur.

Bachelor of Divinity—The same gown as Bachelors of Arts; hood, black silk, lined with violet silk and edged with white fur.

Bachelor of Education—The same gown as Bachelors of Arts; hood, black silk, lined one half with yellow and one half with pale blue silk.

Bachelor of Engineering—The same gown as Bachelors of Arts; hood, black silk, lined with scarlet silk and edged with white fur.

Bachelor of Household Science—The same gown as Bachelors of Arts; hood, black silk, lined with jade green silk and edged with white fur.

Bachelor of Library Science—The same gown as Bachelors of Arts; hood, black silk, lined with orange silk and edged with white fur.

Bachelor of Music—The same gown as Bachelors of Arts; hood, black silk, lined with pale mauve silk and edged with white fur.

Bachelor of Nursing—The same gown as Bachelors of Arts; hood, black silk, lined with dark blue silk and edged with white fur.

Bachelor of Science—The same gown as Bachelors of Arts; hood, black silk, lined with yellow silk and edged with white fur.

Bachelor of Science in Agriculture—The same gown as Bachelors of Arts; hood, black silk, lined with dark green silk and edged with white fur.

Bachelor of Science in Physical Education—The same gown as Bachelors of Arts; hood, black silk, lined with claret coloured silk and edged with white fur.

Bachelor of Science in Physical and Occupational Therapy—The same gown as Bachelors of Arts; hood, black silk, lined one half with yellow and one half with dark blue silk.

Master of Arts—Black gown of stuff or silk, falling below knee, with long sleeves with semi-circular cut at the bottom (similar to that of the Cambridge M.A.); hood, black silk, lined with pale blue silk.

Master of Architecture—The same gown as Masters of Arts; hood, black silk, lined with white silk.

Master of Commerce—The same gown as Masters of Arts; hood, black silk, lined with purple silk.

Master of Engineering—The same gown as Masters of Arts; hood, black silk, lined with scarlet silk.

Master of Laws—The same gown as Masters of Arts; hood, black silk, lined with French grey silk.

Master of Library Science—The same gown as Masters of Arts; hood, black silk lined with orange silk.

Master of Sacred Theology—The same gown as Masters of Arts; hood, black silk lined with violet silk.

Master of Science—The same gown as Masters of Arts; hood, black silk, lined with yellow silk.

Master of Science (Applied)—The same gown as Masters of Arts; hood, black silk, lined one half with pale green silk and one half with yellow silk, divided vertically, the green being on the wearer's right.

Master of Social Work—The same gown as Masters of Arts; hood, black silk, lined with fuchsia silk.

Doctor of Civil Law—The same gown as Masters of Arts; hood, scarlet cloth, lined with French grey silk.

Doctor of Dental Surgery—The same gown as Masters of Arts; hood; scarlet cloth, lined with pink silk.

Doctor of Laws—The same gown as Masters of Arts; hood, scarlet cloth, lined with white silk.

McGILL UNIVERSITY LIBRARY

Doctor of Letters—The same gown as Masters of Arts; hood, scarlet cloth, lined with pale blue silk.

Doctor of Medicine and Master of Surgery—The same gown as Masters of Arts; hood, scarlet cloth, lined with dark blue silk.

Doctor of Music—The same gown as Masters of Arts; hood, scarlet cloth, lined with mauve silk.

Doctor of Philosophy—The same gown as Masters of Arts; hood, scarlet cloth, lined with pale green silk.

Doctor of Science—The same gown as Masters of Arts; hood, scarlet cloth, lined with yellow silk.

Doctors of Laws, Doctors of Civil Law, Doctors of Letters, Doctors of Science, Doctors of Philosophy, and Doctors of Music are entitled to wear for full dress a robe of scarlet cloth (similar in pattern to that of the Cambridge LL.D.) faced with silk of the same colour as the lining of their respective hoods.

All hoods are in pattern similar to that of the Masters of Arts of Cambridge University.

Undergraduates and graduates wear the ordinary black trencher with black tassel, but Doctors of Laws, Doctors of Civil Law, Doctors of Letters, Doctors of Science, Doctors of Philosophy, and Doctors of Music wear for full dress a black velvet hat with gold cord, similar to that worn by Doctors of Laws of Cambridge University.

Samples of the colours of the linings of all hoods are kept for inspection in the office of the Registrar.

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